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1A

Electrical Systems

This guide is to be used as a reference document only. Please consult your Western Star CAE representative on specific spec'ing needs as the information contained in this document can change without notice.

For EPA2010 and newer. Legacy EPA98 and older, please reference version 3.1 and older.



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4700 Identification - Legacy vs. Enhanced

The 4700 truck has been redesigned to incorporate many new features. In this entire document, the existing 4700 will be labeled “4700 L” (for Legacy) and the new vehicle, which is called the 4700 Enhanced, will be labeled as “4700 ENH”. Shown on this page are some of the key identifying features to establish which version you have.

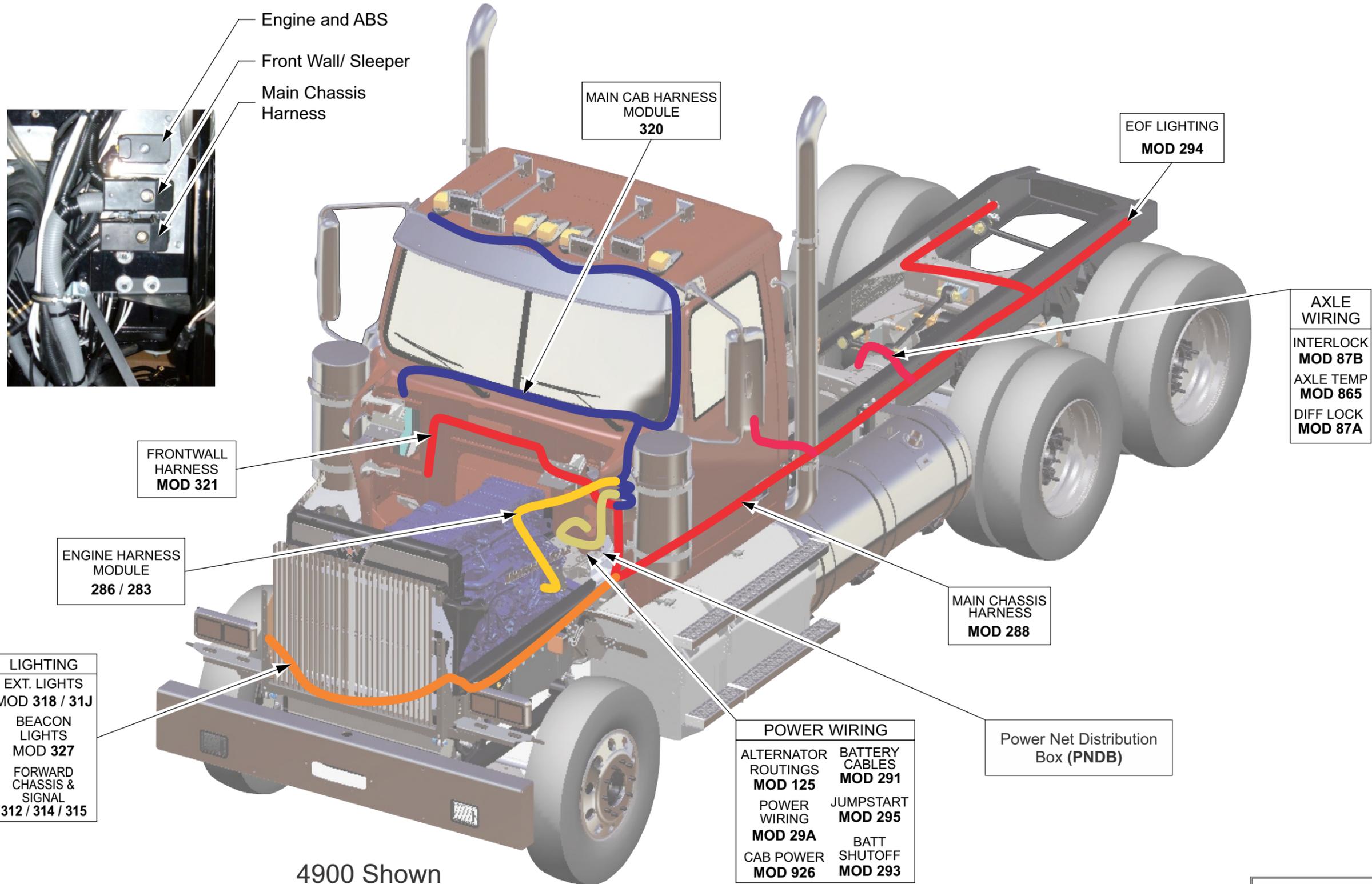
Features:

- ◆ Contour improvements and congruent look
- ◆ More modern gauge/instrument layout
- ◆ Door pockets with wrap around hand points
- ◆ Updated instrument cluster and gauges - provides more information to the driver in an intuitive format
- ◆ Multi-function LCD readout:
 - ◆ MPG
 - ◆ Gear indicator (DT12 & Eaton Only)
 - ◆ Trip info
 - ◆ Outside temperature
 - ◆ Heading
- ◆ Steering Wheel:
 - ◆ Controls for cruise control, radio, headlight on/off, phone, LCD display
 - ◆ Hands on the wheel, eyes on the road” steering wheel controls
 - ◆ LCD Display
- ◆ Steering Column:
 - ◆ Adjustable
 - ◆ Turn signal with integrated wiper control
 - ◆ Shift controls (DT12)
 - ◆ Engine brake using the selector stalk

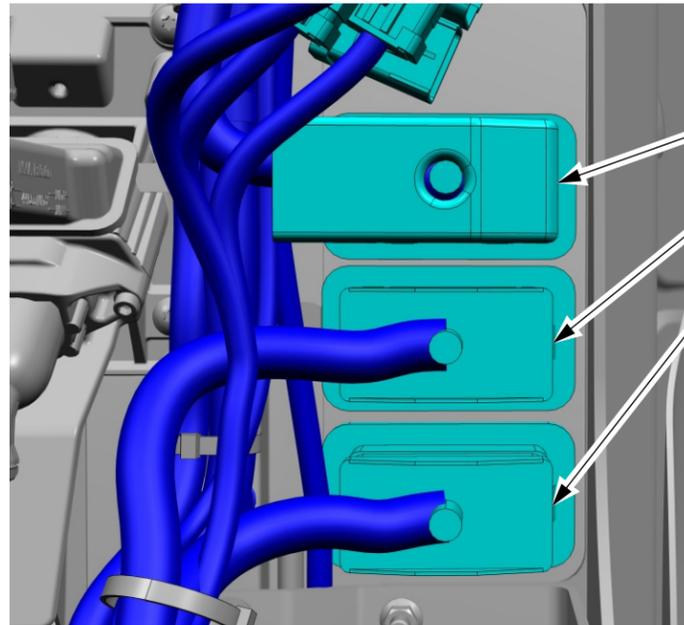


4700 Legacy Map Pocket

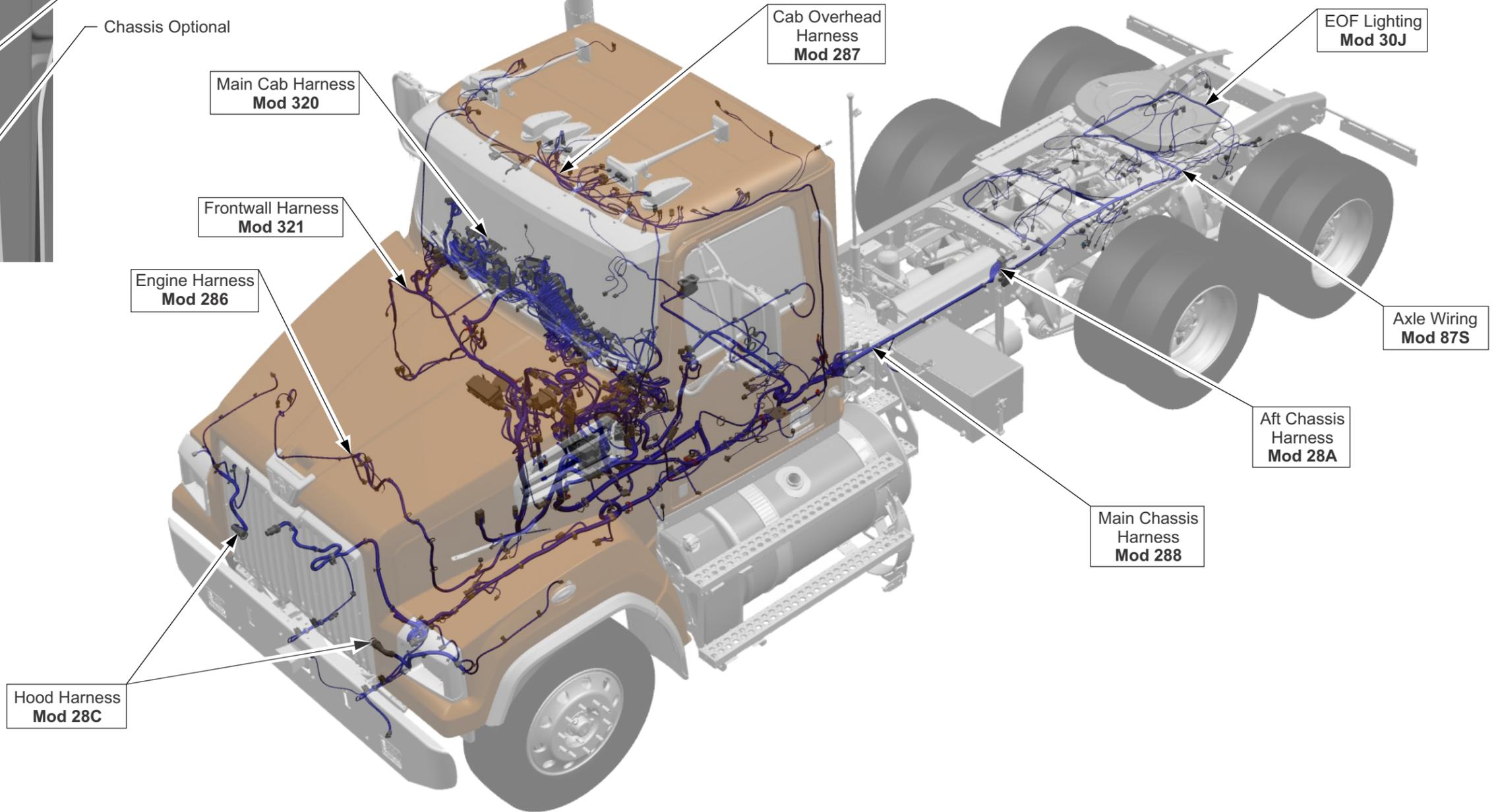




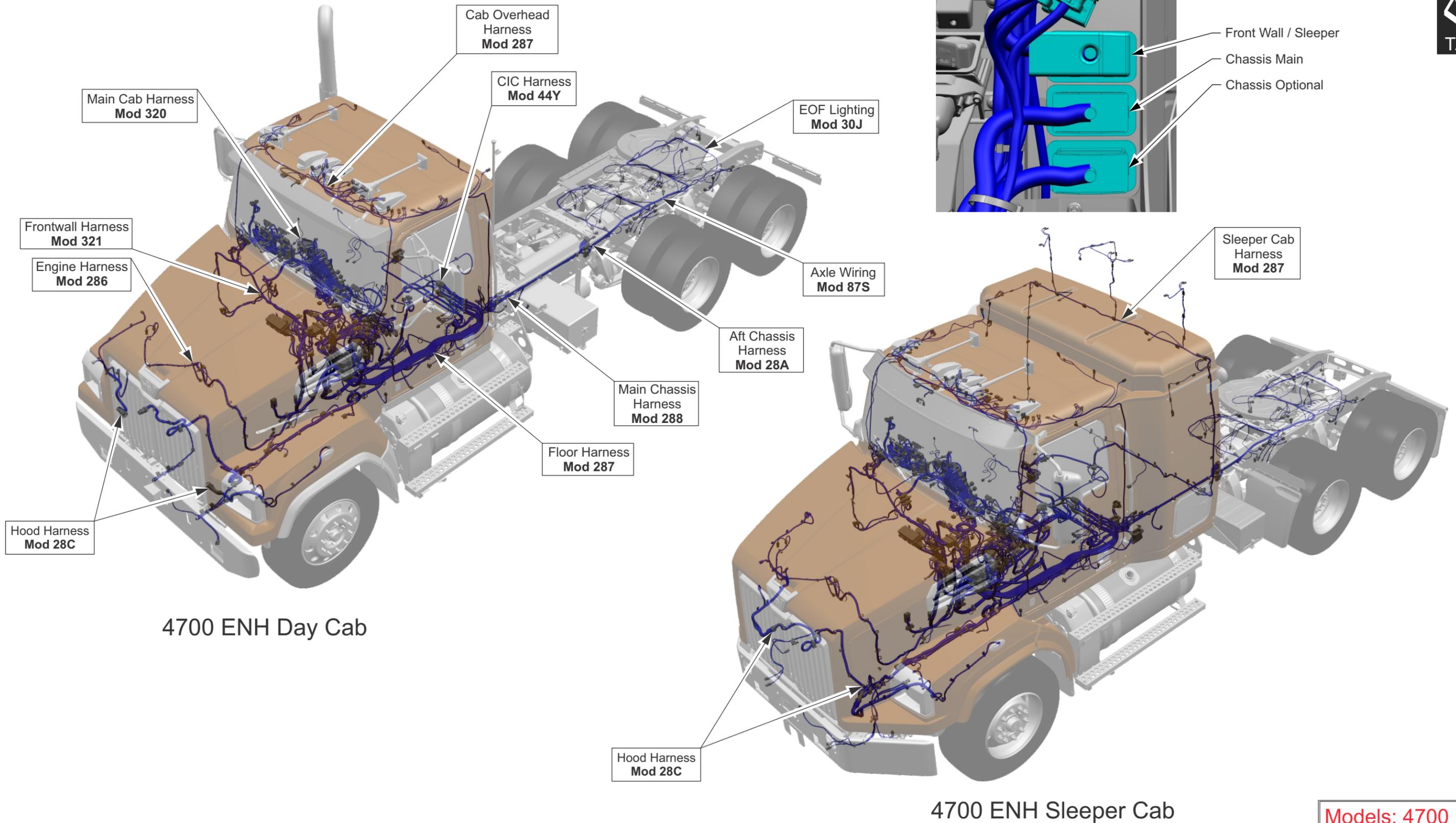
4900 Shown



Front Wall / Sleeper
Chassis Main
Chassis Optional



4700 Legacy Shown



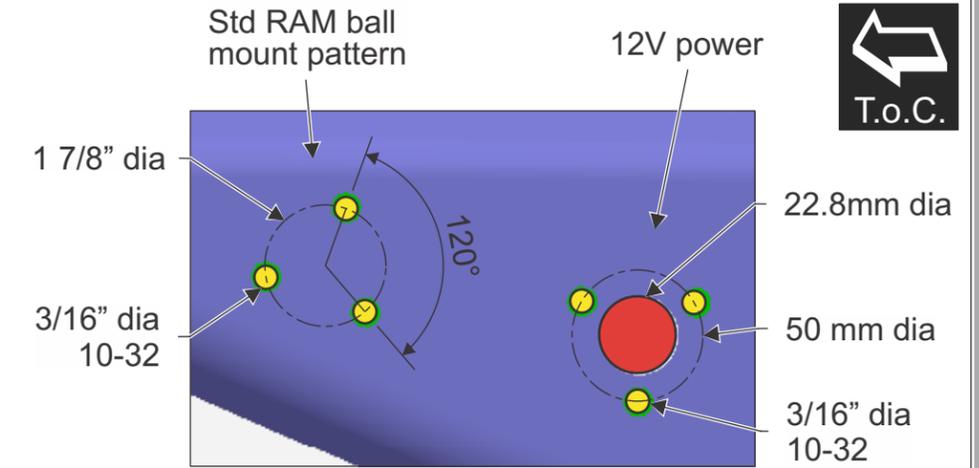
Top of dash navigation prep with power and ground

1U1-001 - Dash Mount Device Prep

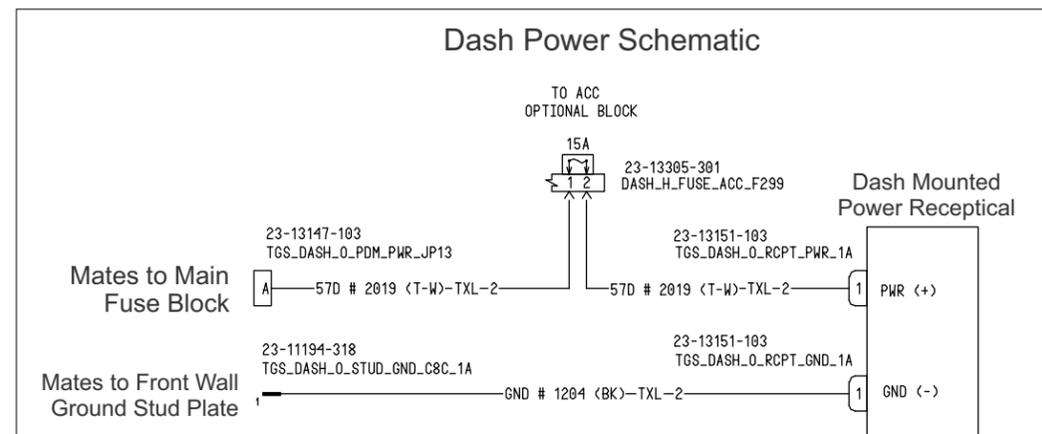
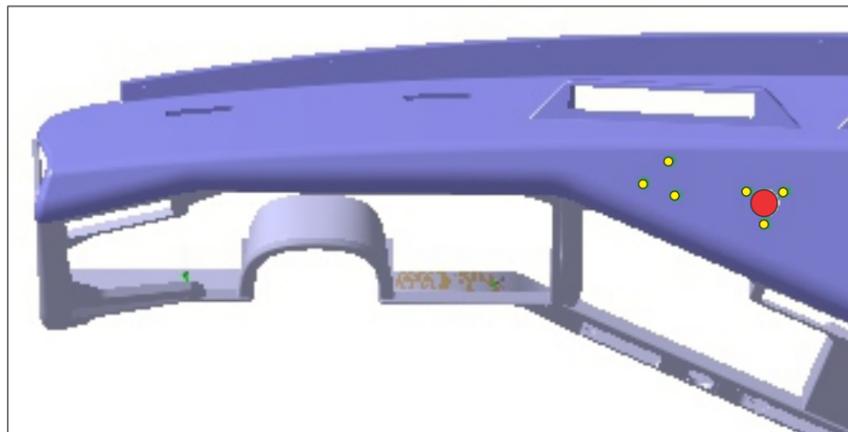
This new option provides a standard bolt pattern in the dash for a 1" RAM ball mount system or other camera mount equipment. These mountings allow customers to quickly mount a variety of electrical devices ranging from navigation systems to cell phone holders in a road legal and easily accessible location without drilling the dash. Mounting solutions for most devices can be found on the RAM website. Navigation and camera systems can be consistently mounted to factory installed mounts with no cab modifications. This industry leading solution allows customers to easily upgrade to new systems as fast as they become available to the market. The Nav prep system is superior to in-dash navigation as it allows owners or drivers to easily add their own devices such as smartphones for hands free and navigation or full navigation and backup systems. Today's technology is moving quicker than in-dash systems can keep up with. Using the Western Star Navigation prep your equipment can be easily upgraded to the latest hardware in minutes.



Nav System Mounted using RAM Mounting Adapters Shown Below



AWTI Camera Mounted using common mounting pattern



RAM B-201CHU



RAM B-202CHU



RAM B-201



RAM B-202U

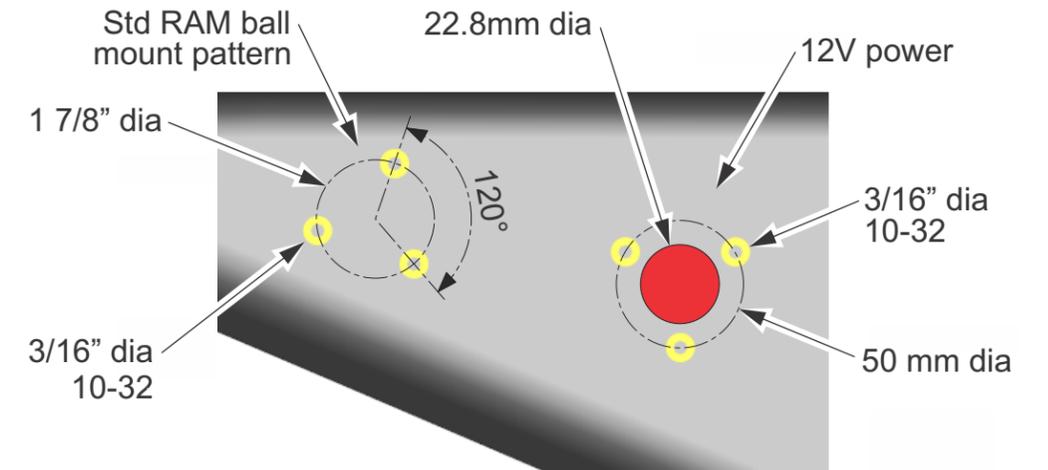
Models: 4700L/4800/4900/6900



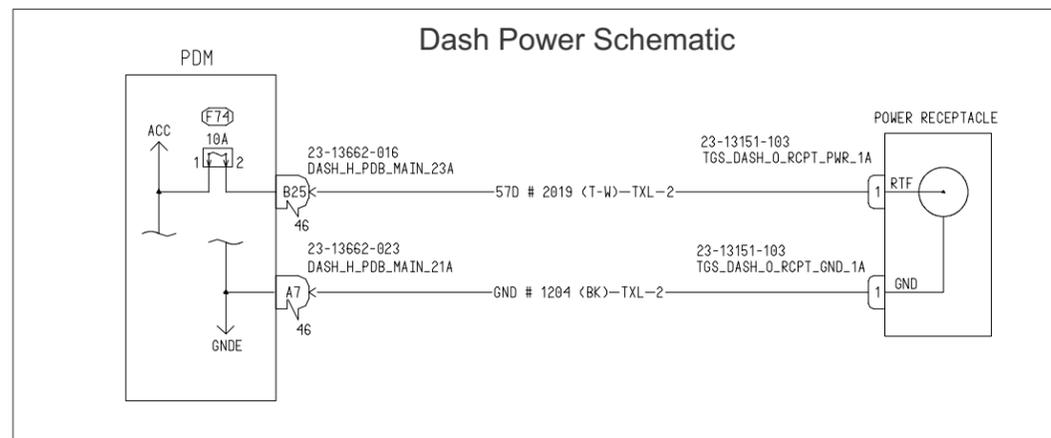
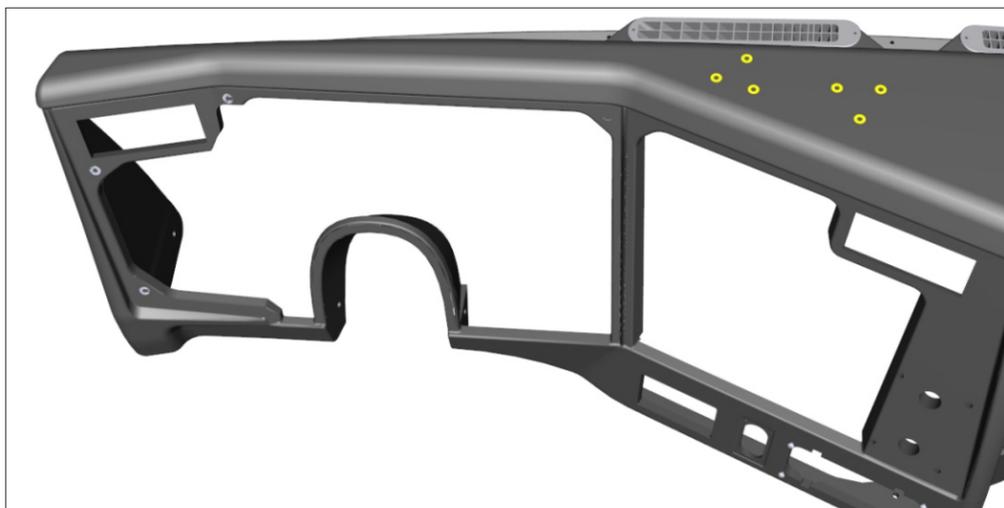
Top of dash navigation prep with power and ground

1U1-001 - Dash Mount Device Prep

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3.2a



RAM B-201CHU



RAM B-202CHU



RAM B-201



RAM B-202U

Camera and Radar Systems

Western Star offers factory Pre-Delivery Installation (PDI) installed camera and radar packages for improved safety and efficiency on the job site. Choose from three different systems using the data codes below or custom order your own configuration from Daimler Custom Truck. All camera systems have built in looping DVR recorders that constantly record drivers actions and surrounding environment. Radar systems use proximity radar and tell operator how to close the object is and give an audible alarm if objects move into the path without the drivers noticing.

- 73H-004** PDI Installed AWTI 1 Backup Camera with Radar System
 - 73H-005** PDI Installed AWTI 3 Camera System (1 backup and 2 side cameras)
 - 73H-006** PDI Installed AWTI 4 Camera with Radar System (1 forward, 1 backup, and 2 side cameras)
- *Note: used in combination with **1U1-001** to provide mounting for backup camera.



3.2a



AWT07MLESD Dash Monitor
 – 7” Heavy Duty Built-in SD Card
 DVR recorder (up to 32GB)
 LED Monitor (Quad Screen Capable)



AWT5000HCR-20 Radar/Camera
 – 4” Grommet Hybrid Radar
 w/integrated Camera
 (fits in standard 4” light cutout)



AWT1020T Front or Rear Camera
 – Heavy Duty Universal Color Camera
 – 1/3” Sony CCD color camera w/IR for Night Vision
 – 150° Lens Angle



AWT2149SC36 Side Camera
 – Adjustable Side Mount Color Camera
 – 1/4” Sony CCD Color Camera w/IR



42' / 10' Cable: Co-Ax Cable
 – Both sides threaded
 – Can be used for extension

Power Cutoff Switches



Positive Disconnect Switch

In-cab disconnect switches are offered in “locking” or “non-locking” configuration.

Exterior battery mounted switches will be offered in the locking configuration only.

Cutoff switches are equipped with red LED lights, which are illuminated when power is on.

Trucks equipped with the body builder auxiliary power system will have an additional LED light on the switch.

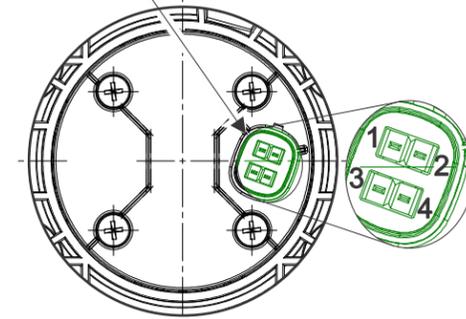
Note:

1. Both PNDB units will be deactivated when the switch is in the off position.
2. Positive disconnect switches do not isolate the starter.

Negative Disconnect Switches

The negative disconnect switch option is for use in emergency and dangerous goods applications only. This option provides a battery box disconnect between the starter and the batteries. This option is currently only available with Detroit Diesel engine configurations.

Main Cab PNDB
Connector Plug
#23-13153-307

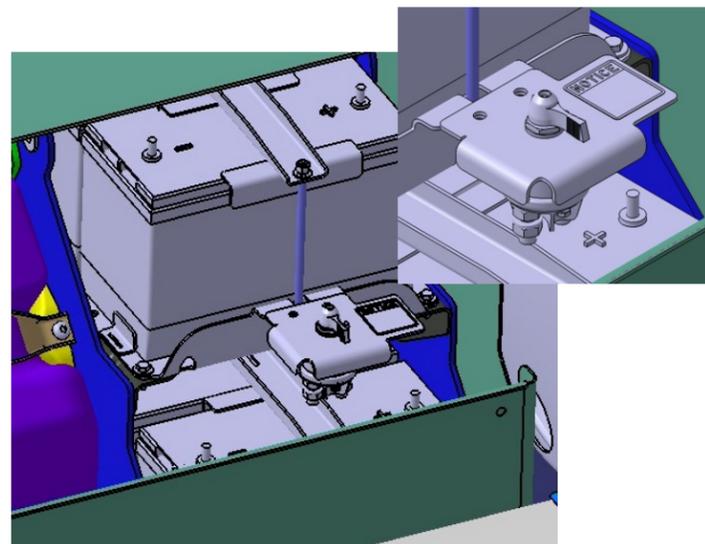


CONNECTOR	PIN	DESCRIPTION
X1, Main PNDB	1	ON SIGNAL
	2	RETURN SIGNAL
	3	LED INDICATOR
	4	OFF SIGNAL

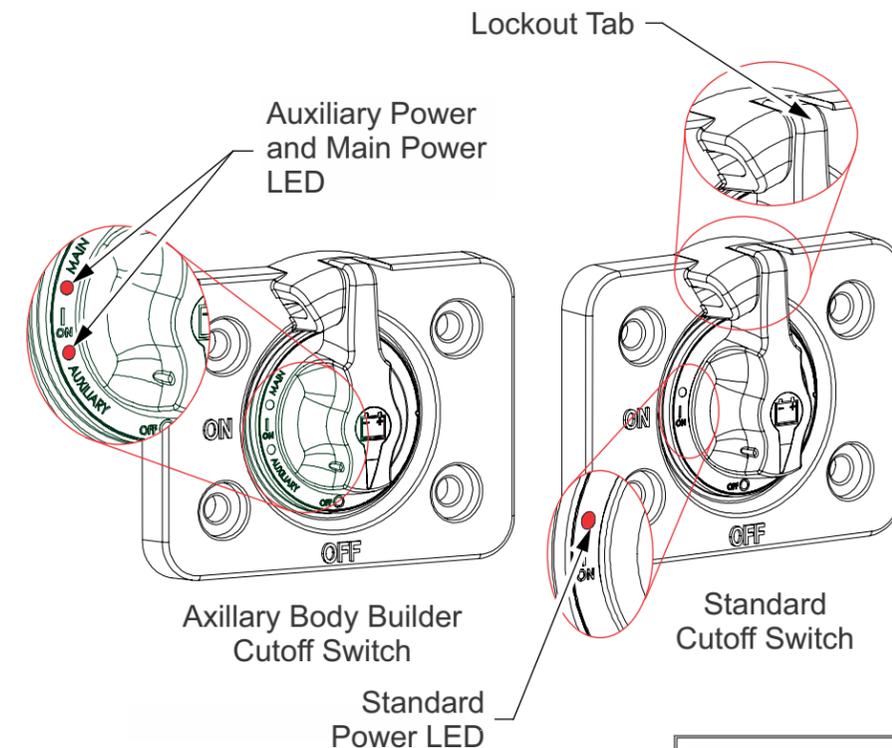
293-058	POSITIVE LOAD DISCONNECT W/CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DR SEAT
293-060	POSITIVE LOAD DISCONNECT W/CAB MTD CONTROL SW W/LOCKING PROVISION MOUNTED OUTBOARD DR SEAT
293-061	POSITIVE LOAD DISCONNECT W/BATTERY BOX CONTROL SWITCH WITH LOCKING PROVISION
293-057	NEGATIVE LOAD DISCONNECT FOR DD13/DD15/DD16 ENGINES WITH BATTERY BOX DISCONNECT SWITCH



293-058/-060/-061 Positive Disconnect Switch



293-057 Negative Battery Box Switch



Models: 4800/4900/6900

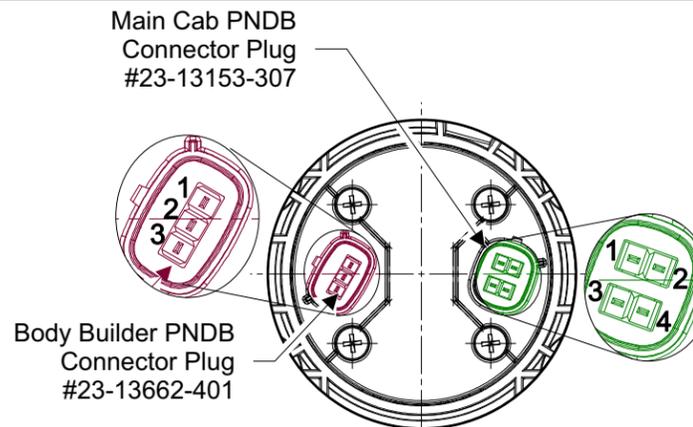
Positive Disconnect Switch

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 Exterior battery mounted switches will be offered in the locking configuration only.
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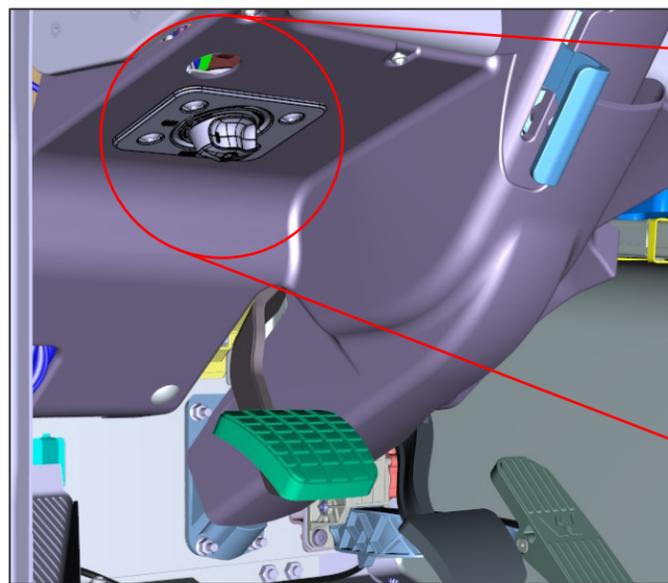
Note:

1. Both PNDB units will be deactivated when the switch is in the off position.
2. Positive disconnect switches do not isolate the starter.

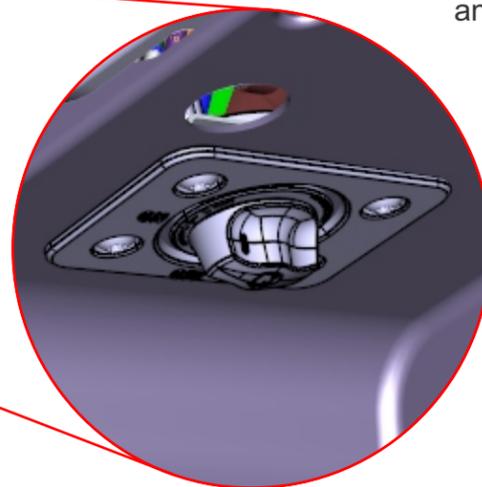
293-058	POSITIVE LOAD DISCONNECT W/CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DR SEAT
293-060	POSITIVE LOAD DISCONNECT W/CAB MTD CONTROL SW W/LOCKING PROVISION MOUNTED OUTBOARD DR SEAT



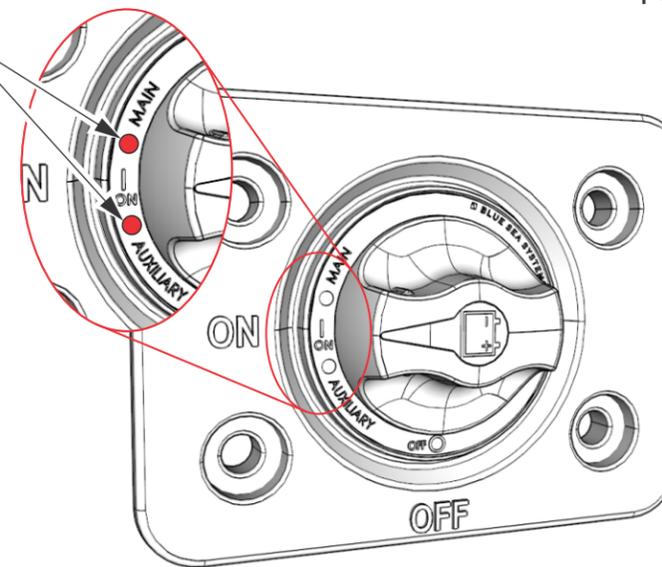
CONNECTOR	PIN	DESCRIPTION
X1, Main PNDB	1	ON SIGNAL
	2	RETURN SIGNAL
	3	LED INDICATOR
	4	OFF SIGNAL
X2, Aux PNDB	1	RETURN SIGNAL
	2	OFF SIGNAL
	3	LED INDICATOR



293-058/-060/-061 Auxiliary Disconnect Switch
(Located under Drivers Side Dash Area)

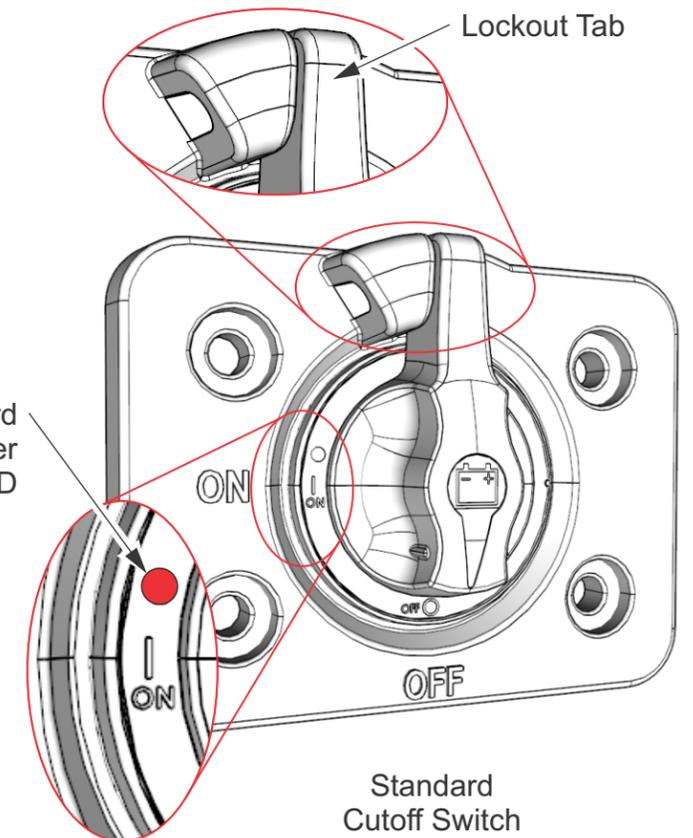


Auxiliary Power and Main Power LED



Auxiliary Body Builder Cutoff Switch

Standard Power LED



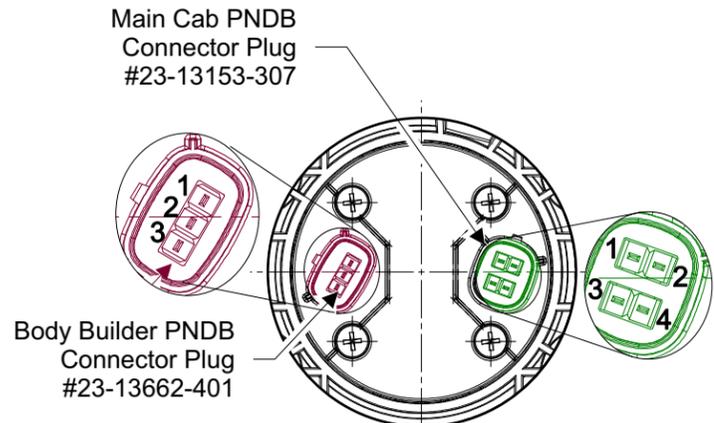
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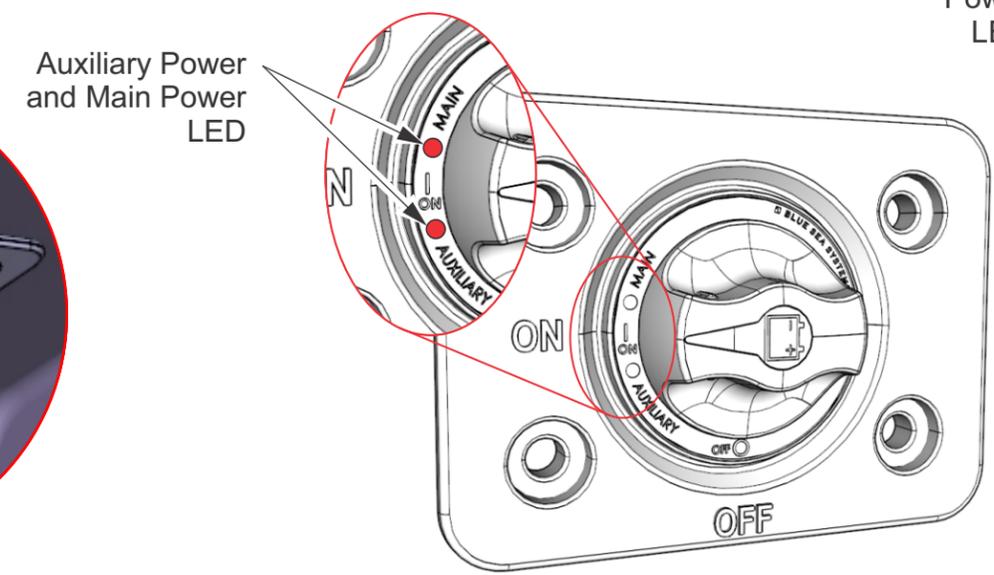
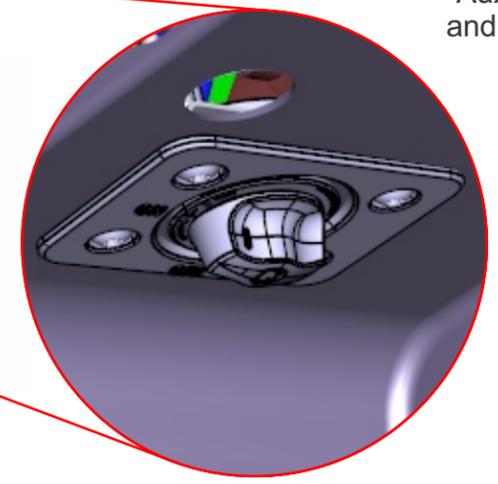
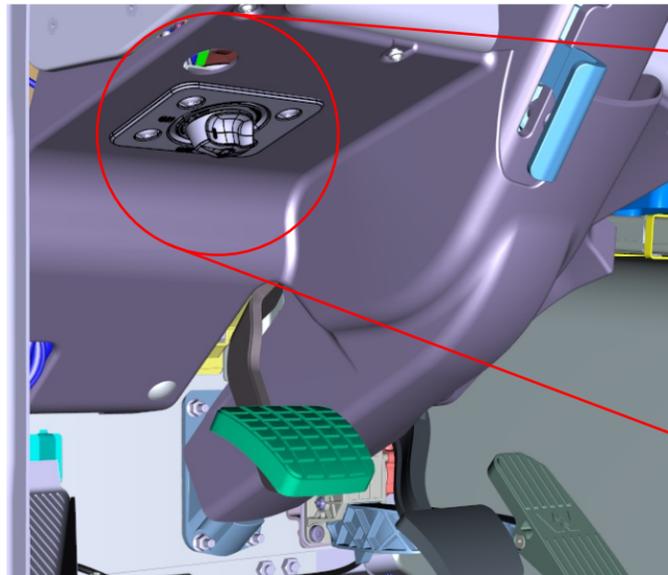
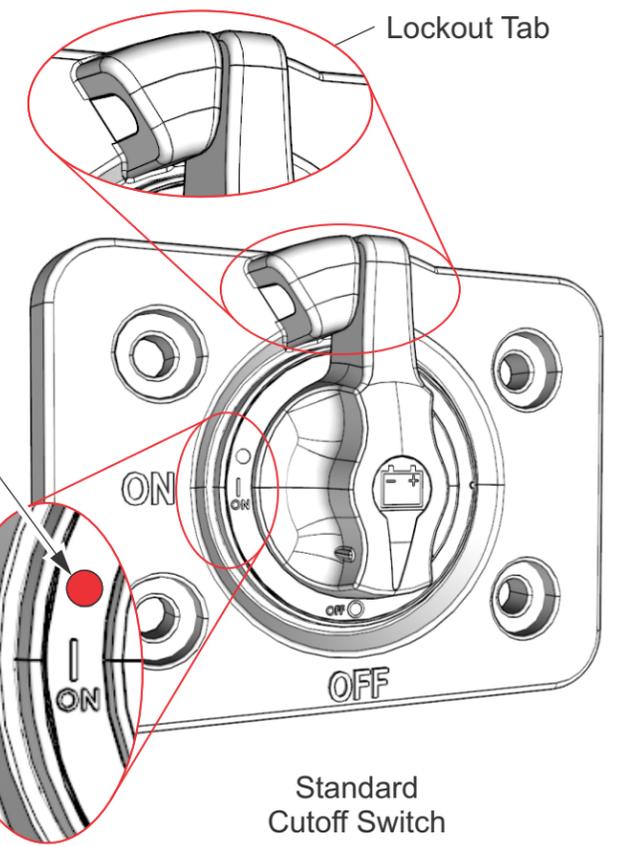
Note:

1. Both PNDB units will be deactivated when the switch is in the off position.
2. Positive disconnect switches do not isolate the starter.

293-072	POSITIVE LOAD DISCONNECT W/ DASH MOUNTED CONTROL SWITCH
293-073	POSITIVE LOAD DISCONNECT W/ DASH MOUNTED CONTROL SWITCH W/LOCKING PROVISION



CONNECTOR	PIN	DESCRIPTION
X1, Main PNDB	1	ON SIGNAL
	2	RETURN SIGNAL
	3	LED INDICATOR
	4	OFF SIGNAL
X2, Aux PNDB	1	RETURN SIGNAL
	2	OFF SIGNAL
	3	LED INDICATOR



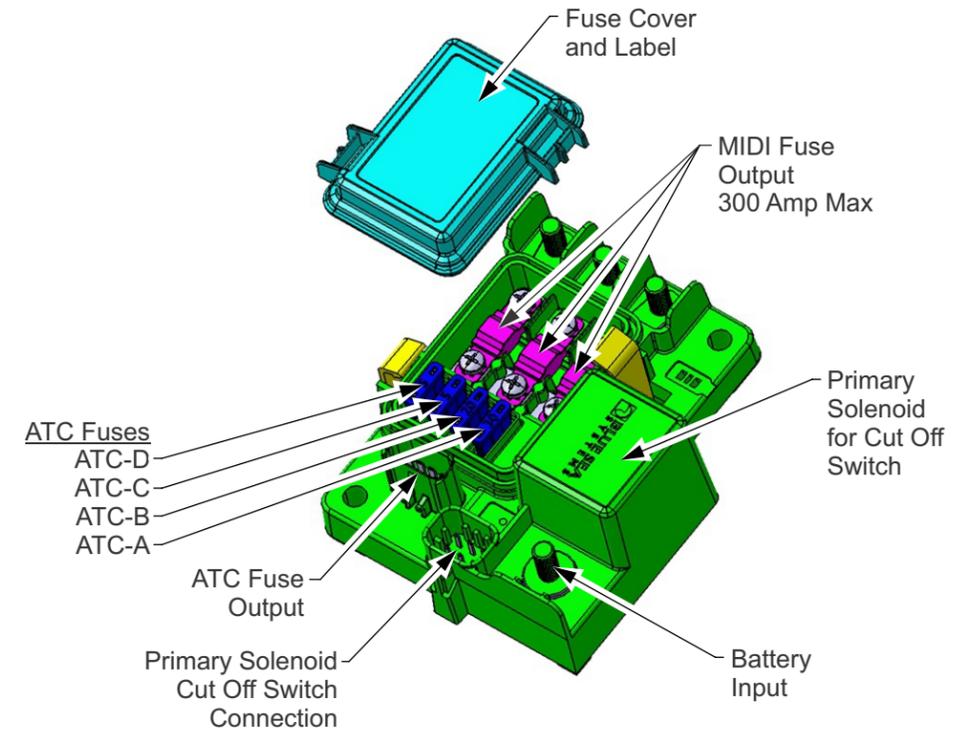
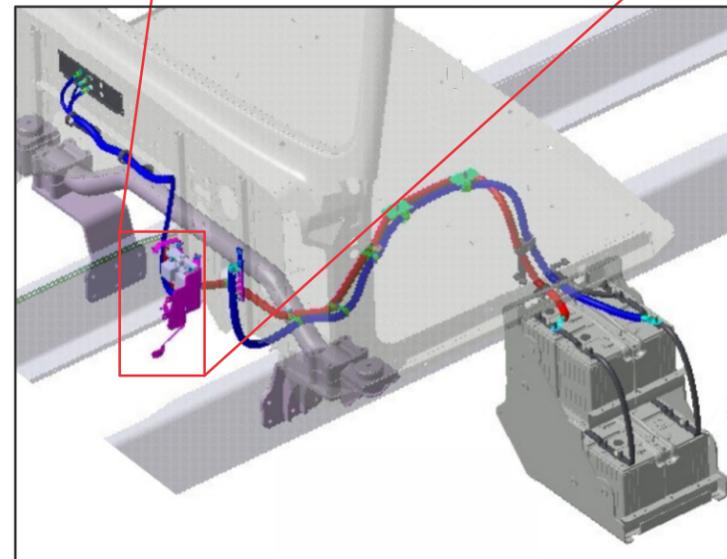
3.2a 293-072/-073 Auxiliary Disconnect Switch (Located under Drivers Side Dash Area)

Power Net Distribution Box (PNDB)

The PNDB is a new power delivery system for the WST and is designed to deliver more consistent and better protected battery power to the other components on the truck.

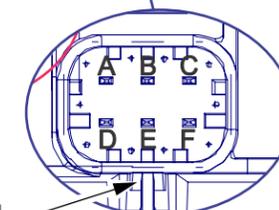
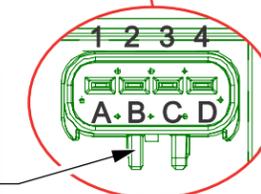
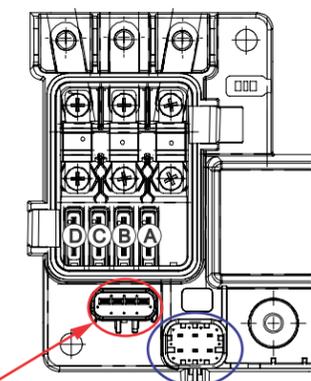
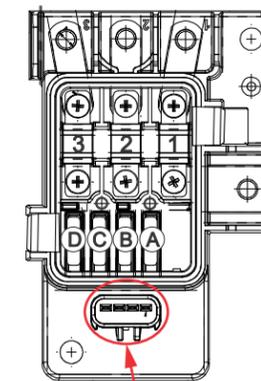
The PNDB also has protected “keep alive” circuits that will maintain power even with the cutoff switch in the off position. The primary reason for this change is to provide power to the 2010 DEF purge system which drains urea from the delivery system and prevents the system from freezing during cold conditions.

The PNDB located at the lower LH front wall area is equipped with three MIDI fuses which supply power to the Main Power Distribution Module. These fuse connections have been relocated from the battery in 2010 to prevent corrosion and improve the trucks reliability in severe conditions.



INSTALLATION WITHOUT DISCONNECT SWITCH

INSTALLATION WITH DISCONNECT SWITCH



X2
ATC Fuse output keeps power on after disconnect

X1
Solenoid Control

Mating connector
23-13153-410

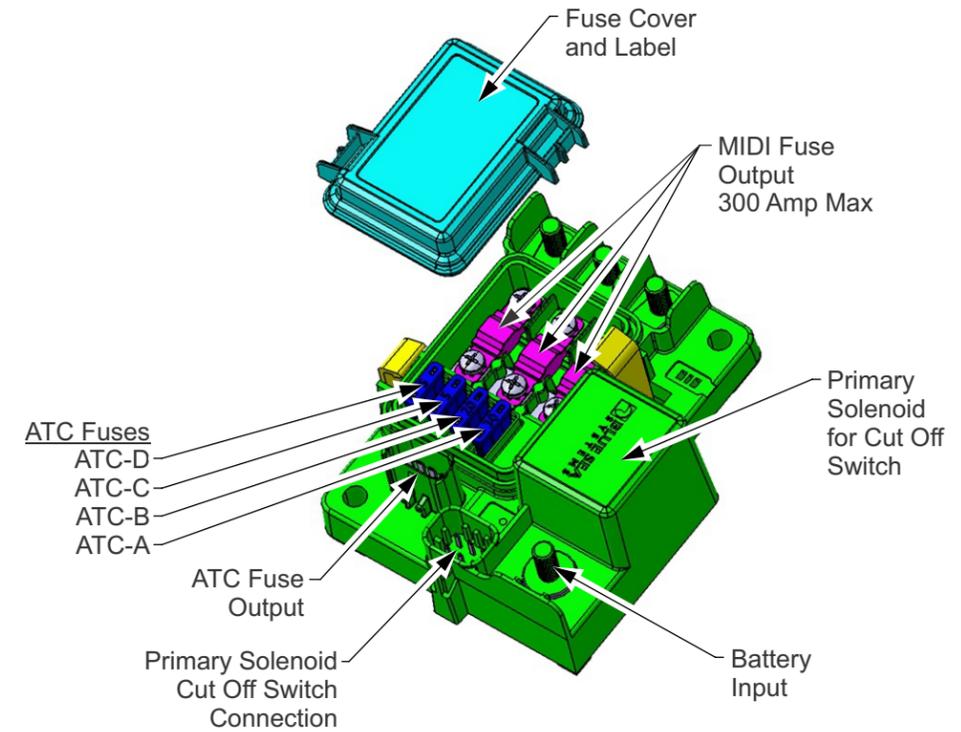
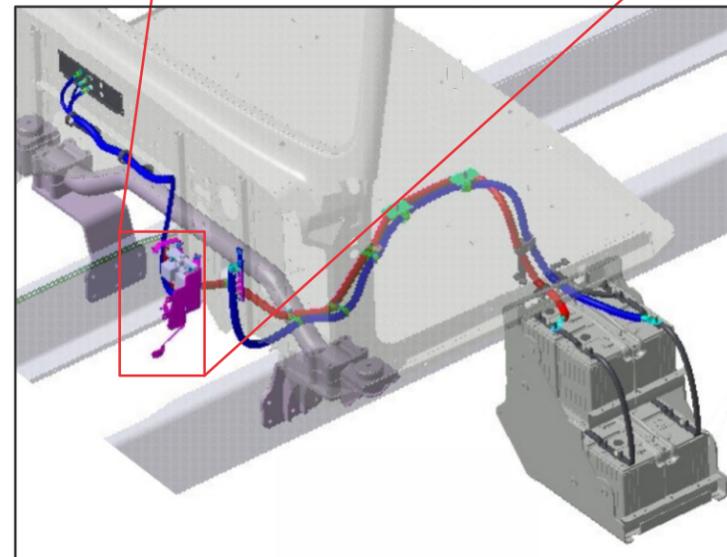
Fuse	Function	Rating	Max. Fuse Allowed	X2 Pinout
ATC-A	After Treatment ECU	30 AMPS	30 AMPS	1
ATC-B	Emergency Power	5 AMPS	30 AMPS	2
ATC-C	Radio and Clock	5 AMPS	30 AMPS	3
ATC-D	Alternator Remote Sense	5 AMPS	30 AMPS	4
MIDI-1 (Fuse 1)	Cab Ignition	100 AMPS	200 AMPS	-
MIDI-2 (Fuse 2)	Cab B+	100 AMPS	200 AMPS	-
MIDI-3 (Fuse 3)	Power Train PDM	175 AMPS	200 AMPS	-

Power Net Distribution Box (PNDB)

The PNDB is a new power delivery system for the WST and is designed to deliver more consistent and better protected battery power to the other components on the truck.

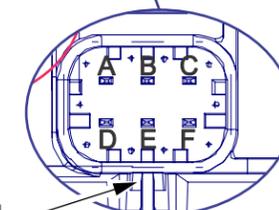
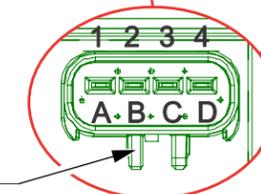
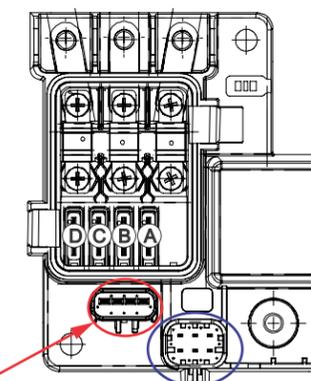
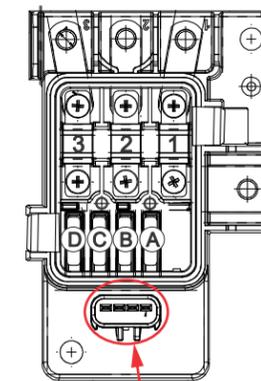
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The PNDB located at the lower LH front wall area is equipped with three MIDI fuses which supply power to the Main Power Distribution Module. These fuse connections have been relocated from the battery in 2010 to prevent corrosion and improve the trucks reliability in severe conditions.



INSTALLATION WITHOUT DISCONNECT SWITCH

INSTALLATION WITH DISCONNECT SWITCH



X2
ATC Fuse output keeps power on after disconnect

X1
Solenoid Control

Mating connector 23-13153-410

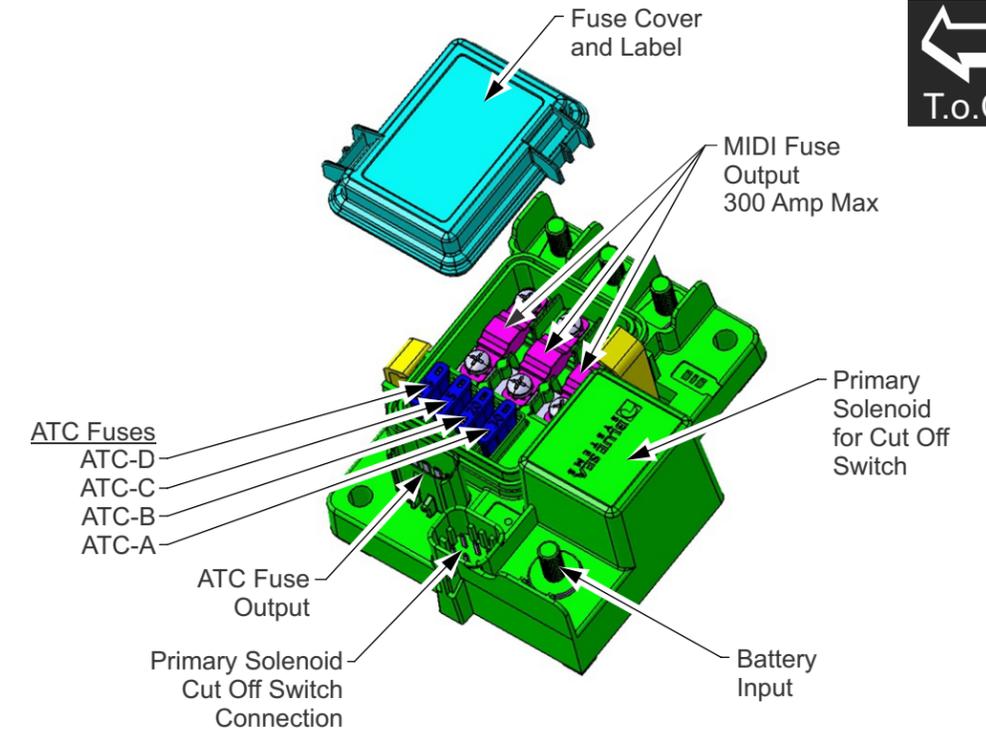
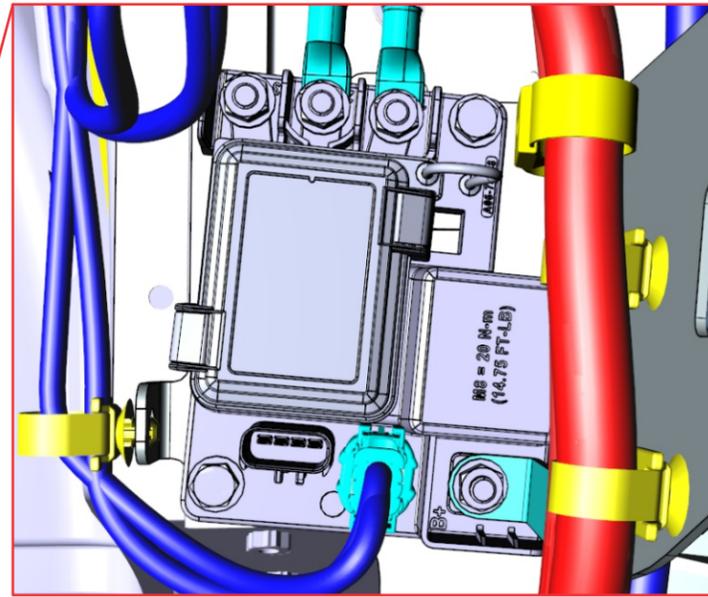
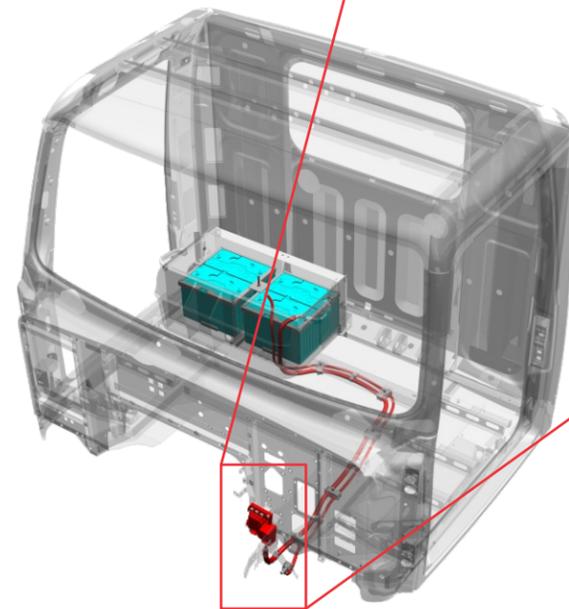
Fuse	Function	Rating	Max. Fuse Allowed	X2 Pinout
ATC-A	After Treatment ECU	30 AMPS	30 AMPS	1
ATC-B	Emergency Power	5 AMPS	30 AMPS	2
ATC-C	Radio and Clock	5 AMPS	30 AMPS	3
ATC-D	Alternator Remote Sense	5 AMPS	30 AMPS	4
MIDI-1 (Fuse 1)	Cab Ignition	100 AMPS	200 AMPS	-
MIDI-2 (Fuse 2)	Cab B+	100 AMPS	200 AMPS	-
MIDI-3 (Fuse 3)	Power Train PDM	175 AMPS	200 AMPS	-

Power Net Distribution Box (PNDB)

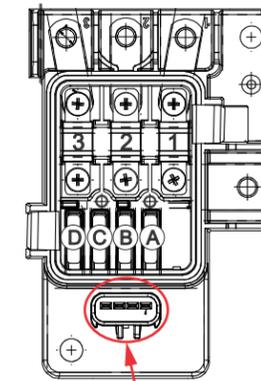
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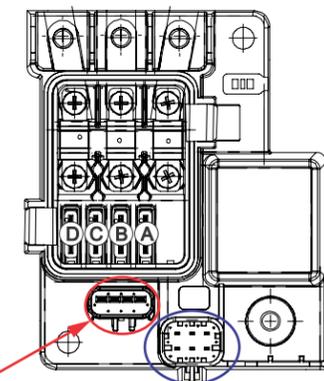
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INSTALLATION WITHOUT DISCONNECT SWITCH



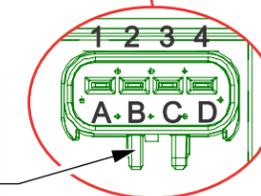
INSTALLATION WITH DISCONNECT SWITCH



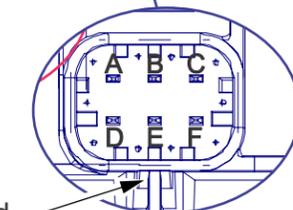
Fuse	Function	Rating	Max. Fuse Allowed	X2 Pinout
ATC-A	ECM/ATD ECU	30 AMPS	30 AMPS	1
ATC-B	Emer PWR/LVD Sen	5 AMPS	30 AMPS	2
ATC-C	Radio/Clock/VT/TLMY	15 AMPS	30 AMPS	3
ATC-D	Alternator Remote Sense	5 AMPS	30 AMPS	4
MIDI-1 (Fuse 1)	PDM #1	150 AMPS	200 AMPS	-
MIDI-2 (Fuse 2)	PDM #2	200 AMPS	200 AMPS	-
MIDI-3 (Fuse 3)	Engine	125 AMPS	200 AMPS	-

X2
ATC Fuse output keeps power on after disconnect

Mating connector 23-13153-410



X1
Solenoid Control





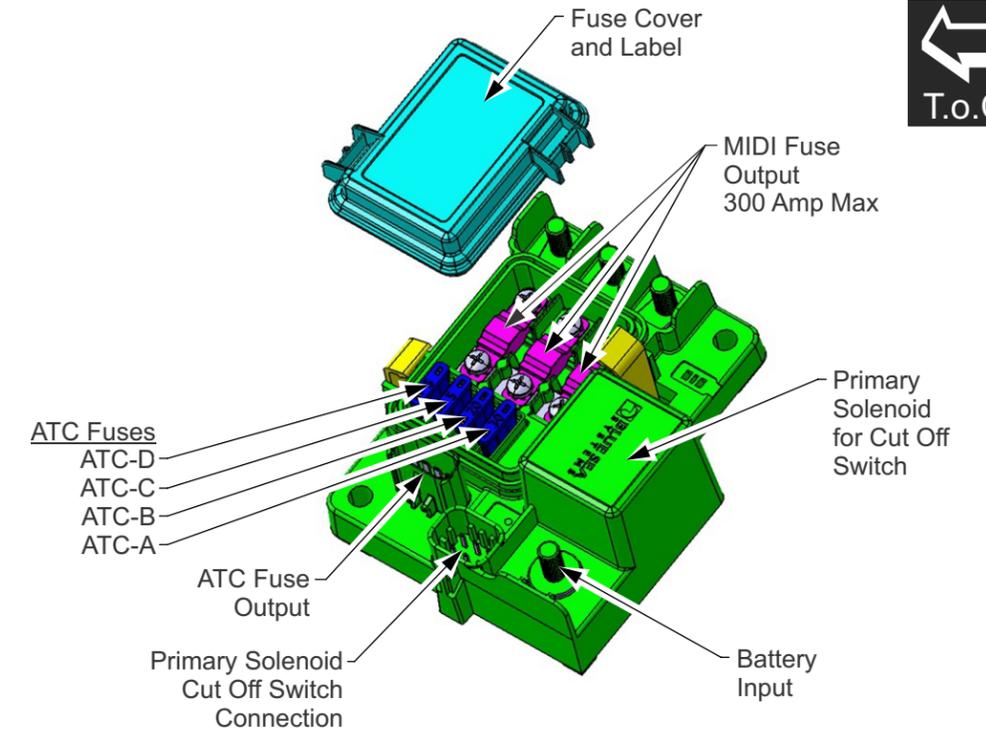
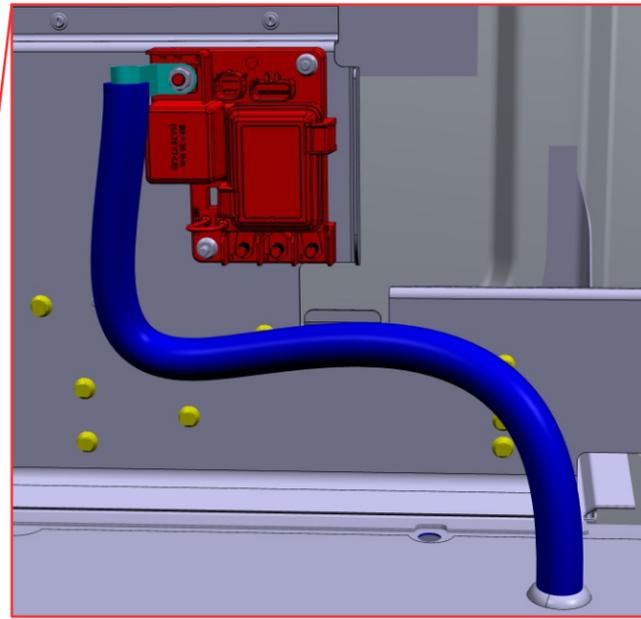
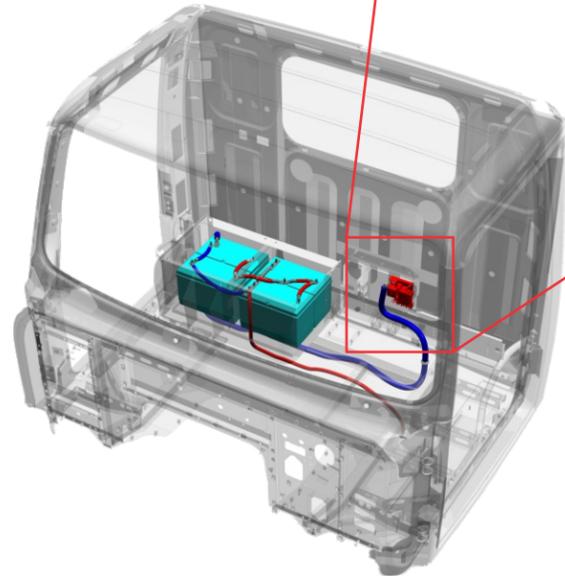
Aux Power Net Distribution Box (PNDB)

Aux Power Net Distribution Box (PNDB)

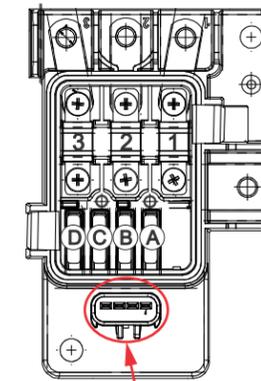
The PNDB is a new power delivery system for the WST and is designed to deliver more consistent and better protected battery power to the other components on the truck.

The PNDB also has protected "keep alive" circuits that will maintain power even with the cutoff switch in the off position. The primary reason for this change is to provide power to the 2010 DEF purge system which drains urea from the delivery system and prevents the system from freezing during cold conditions.

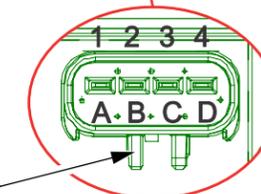
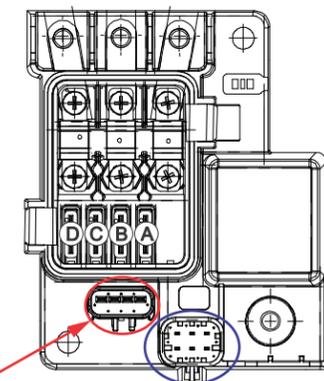
The PNDB located at the lower LH front wall area is equipped with three MIDI fuses which supply power to the Main Power Distribution Module. These fuse connections have been relocated from the battery in 2010 to prevent corrosion and improve the trucks reliability in severe conditions.



INSTALLATION WITHOUT DISCONNECT SWITCH



INSTALLATION WITH DISCONNECT SWITCH



X2
ATC Fuse output keeps power on after disconnect.

X1
Solenoid Control

Mating connector
23-13153-410

Fuse	Function	Rating	Max. Fuse Allowed	X2 Pinout
ATC-A	-	-	30 AMPS	1
ATC-B	-	-	30 AMPS	2
ATC-C	-	-	30 AMPS	3
ATC-D	-	-	30 AMPS	4
MIDI-1 (Fuse 1)	Optional Switch	150 AMPS	200 AMPS	-
MIDI-2 (Fuse 2)	Trailer Wiring	150 AMPS	200 AMPS	-
MIDI-3 (Fuse 3)	Body Lighting	150 AMPS	200 AMPS	-

Aux Power Net Distribution Box (PNDB)

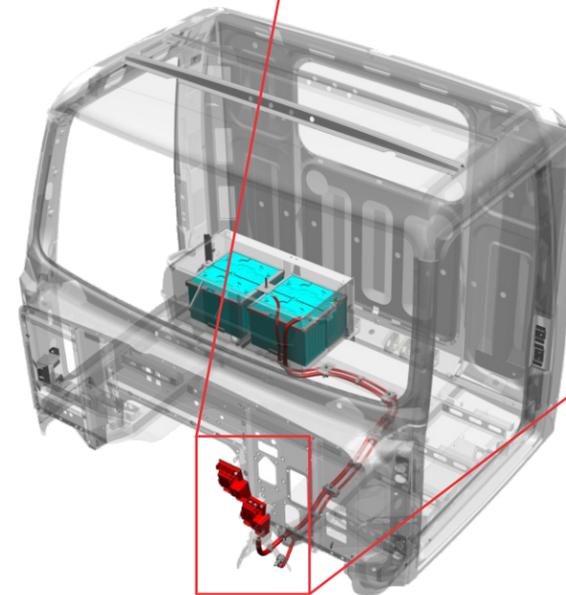
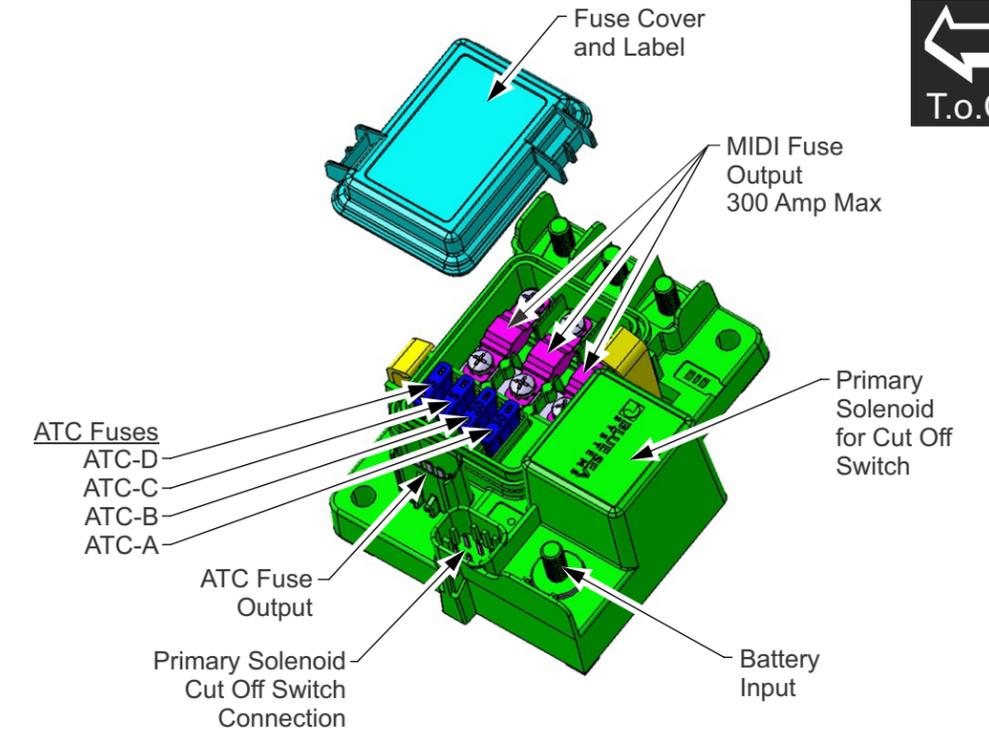
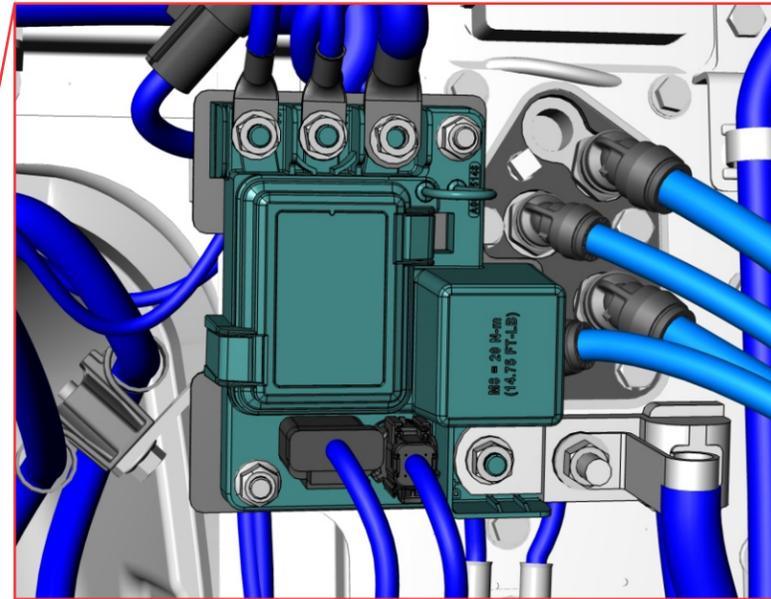


Aux Power Net Distribution Box (PNDB)

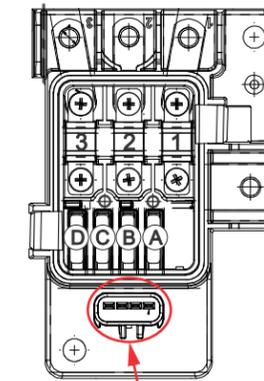
The PNDB is a new power delivery system for the WST and is designed to deliver more consistent and better protected battery power to the other components on the truck.

The PNDB also has protected “keep alive” circuits that will maintain power even with the cutoff switch in the off position. The primary reason for this change is to provide power to the 2010 DEF purge system which drains urea from the delivery system and prevents the system from freezing during cold conditions.

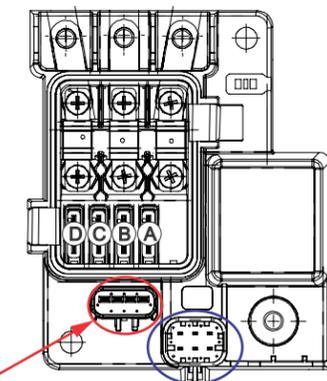
The PNDB located at the lower LH front wall area is equipped with three MIDI fuses which supply power to the Main Power Distribution Module. These fuse connections have been relocated from the battery in 2010 to prevent corrosion and improve the trucks reliability in severe conditions.



INSTALLATION WITHOUT DISCONNECT SWITCH



INSTALLATION WITH DISCONNECT SWITCH



Fuse	Function	Rating	Max. Fuse Allowed	X2 Pinout
ATC-A	PDM #3 Keep Alive	30 AMPS	30 AMPS	1
ATC-B	-	-	30 AMPS	2
ATC-C	-	-	30 AMPS	3
ATC-D	-	-	30 AMPS	4
MIDI-1 (Fuse 1)	High Current/RCP Body Pwr	150 AMPS	200 AMPS	-
MIDI-2 (Fuse 2)	PDM 3 #1	125 AMPS	200 AMPS	-
MIDI-3 (Fuse 3)	PDM 3 #2 Inverter	200 AMPS	200 AMPS	-

X2
ATC Fuse output keeps power on after disconnect

Mating connector 23-13153-410

X1
Solenoid Control

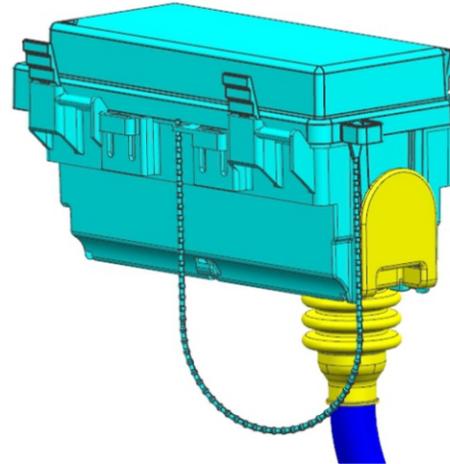
Powertrain - Power Distribution Module

Powertrain (PT-PDM) Module 286

The PT-PDM holds all of the power train related fuses and relays.

- Engine fuses/relays
- Transmission fuses/relays
- After treatment fuses/relays, except DCU main battery feed (located in PNDB)

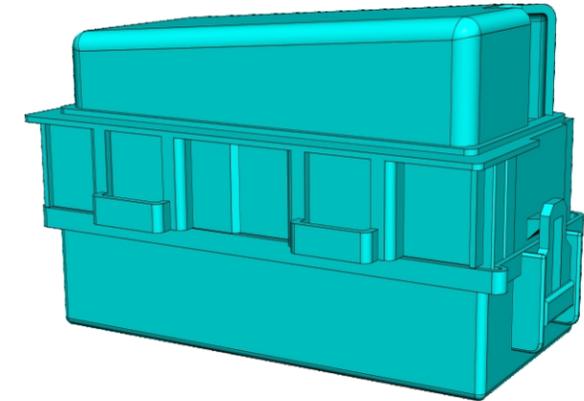
The power which supplies the PT-PDM is sourced from the Power Net Distribution Box (PNDB). It is important to note that the PNDB holds the bi-stable relay, which disconnects the battery when the relay is turned off at the PNDB output. PT-PDM power is not maintained by the alternator if the disconnect switch is "thrown". Therefore, the engine ignition relay, in the PT-PDM, will fall out and the engine will turn off.



4700 Legacy

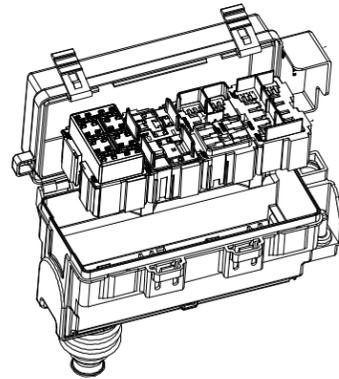


(DD13 Shown)

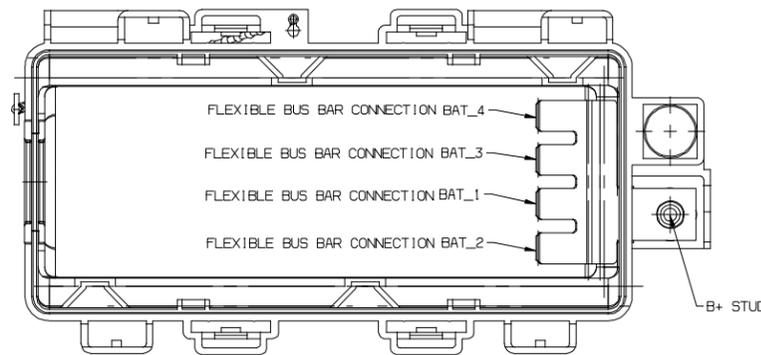


(CUM L9 Shown)

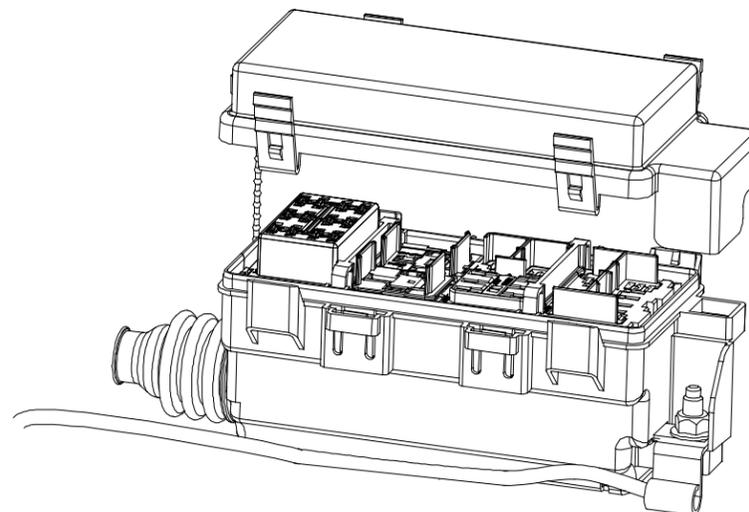
4700 Enhanced



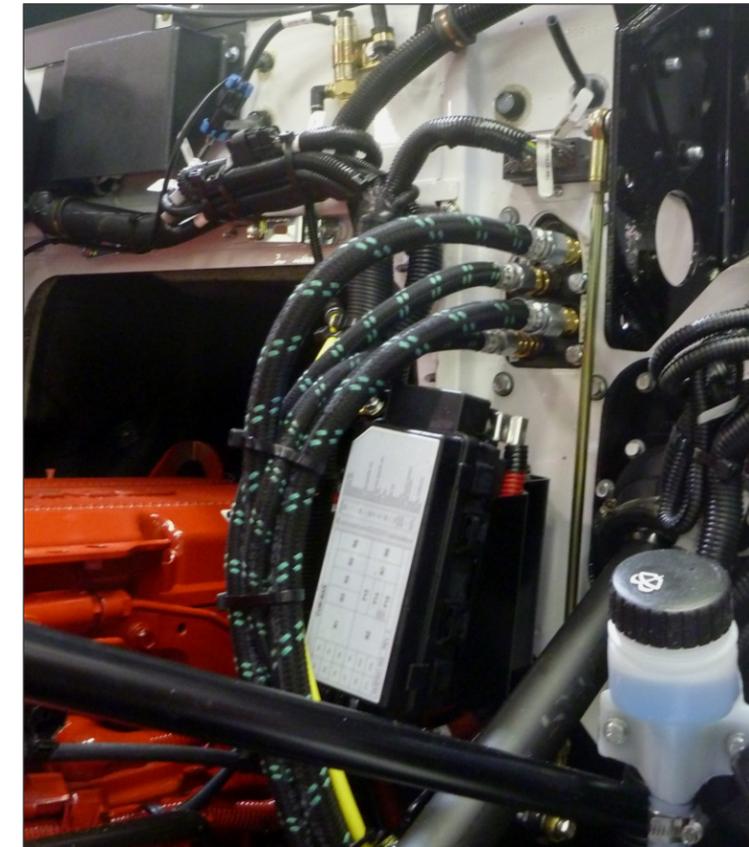
4700 Legacy



VIEW B
TOP COVER REMOVED FOR CLARITY



4800/4900/6900



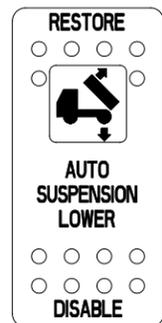
4800/4900/6900

Durable and Flexible Marine Grade Switches

Western Star dash switches are designed for long haul and all weather conditions, these marine grade switches provide long term durability and dependability for customers and flexibility to body builders. Switch faces can easily be replaced and we have many custom options set up for you to create the finished operator controls.

Pre Labeled Additional Switch Options

- WST offers many customized switch options to help the body builder add functionality and body controls.
- Western Star marine grade high current switches are designed for long term duty cycles under severe conditions.
- Listed to the right are some of the common switch options available that provide pre installed dash switches and wiring depending on the option selected.
- Switches are designed with a separate facing that attaches to the switch body.
- Custom switch facings can be selected and factory installed using the following switch label pages.
- Wiring schematics for these options are also located in this chapter, see Index.



Complex Switch with Icon

Custom Switch Facing

New solutions can be created for multiple new units. If you do not see what you are looking for in the next few pages or need more information, contact your WST Dealer Sales contact and we can work with you to create a custom solution.

For detailed switch option information, see Section 1D.

WST Star Gauge System

Beginning in April 2005, the PX and PX-A modules were replaced by air lines that are routed to each individual Star Gauge. These gauges convert the air pressure into an electrical signal. The Star Gauge databus supplies power, ground, and backlighting information for these gauges.

Beginning with EPA10 vehicles, the engine controller no longer offers a J1587 data bus. The engine, transmission, ABS, and most of the other optional electronic devices on the vehicle now communicate using J1939 protocol.

The EPA10 RX Module

This new redesigned module, incorporates functions of the earlier RX and PX modules in one unit that also performs a gateway function. The EPA10 RX module performs the following functions:

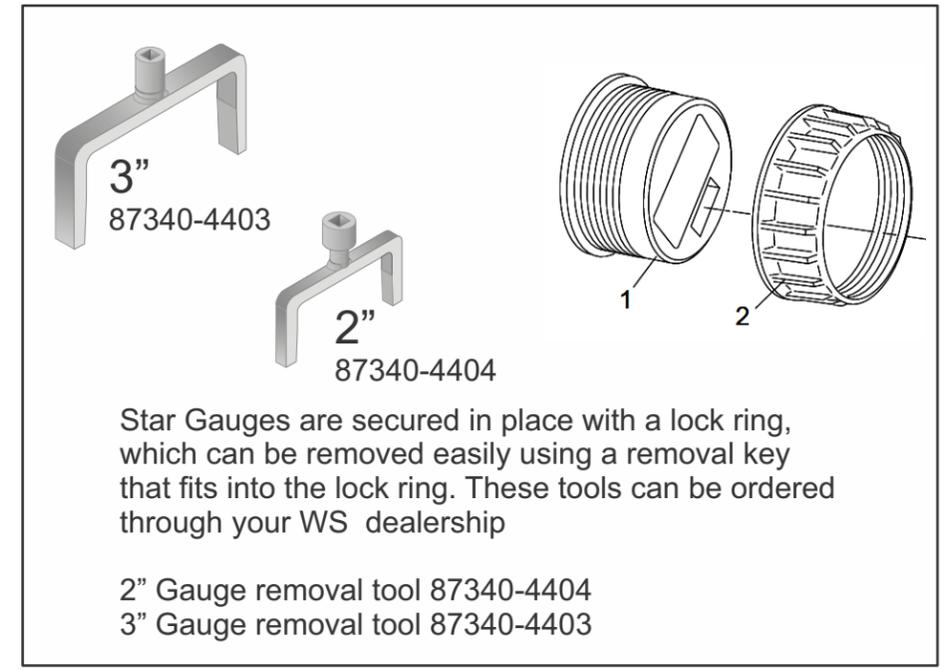
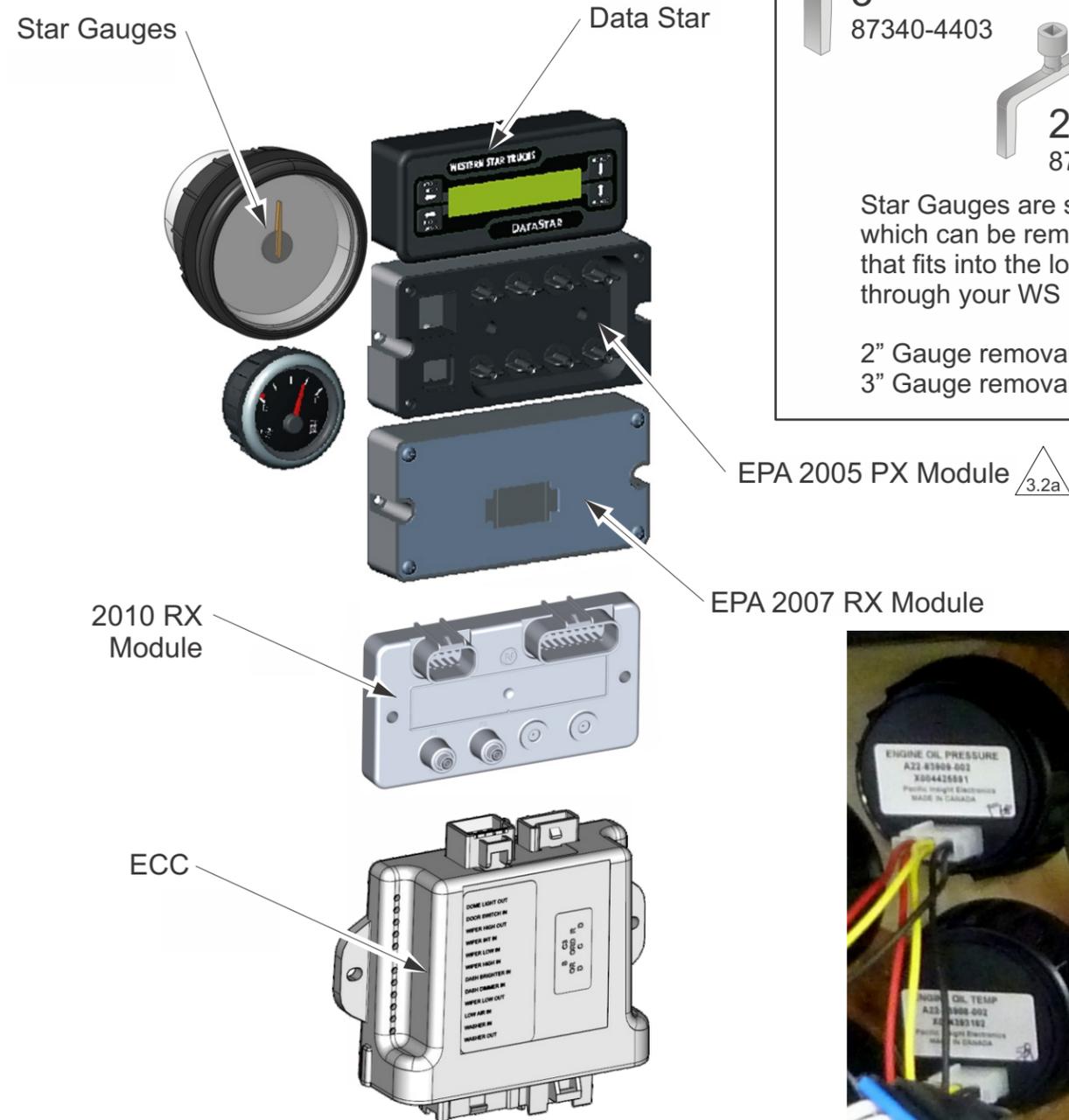
- Converts sensor and voltage inputs into the J1587 (PI Bus) data.
- Converts four air pressure inputs into J1587 (PI Bus) data.
- Gateway Function converts J1939 data that is required for the DataStar and the Star Gauges into J1587 protocol (PI Bus) data.

Note: The J1587 data network is also called the PI bus in some instances. The speedometer uses the J1587 data from the RX module as the source of data for the Star Gauges.

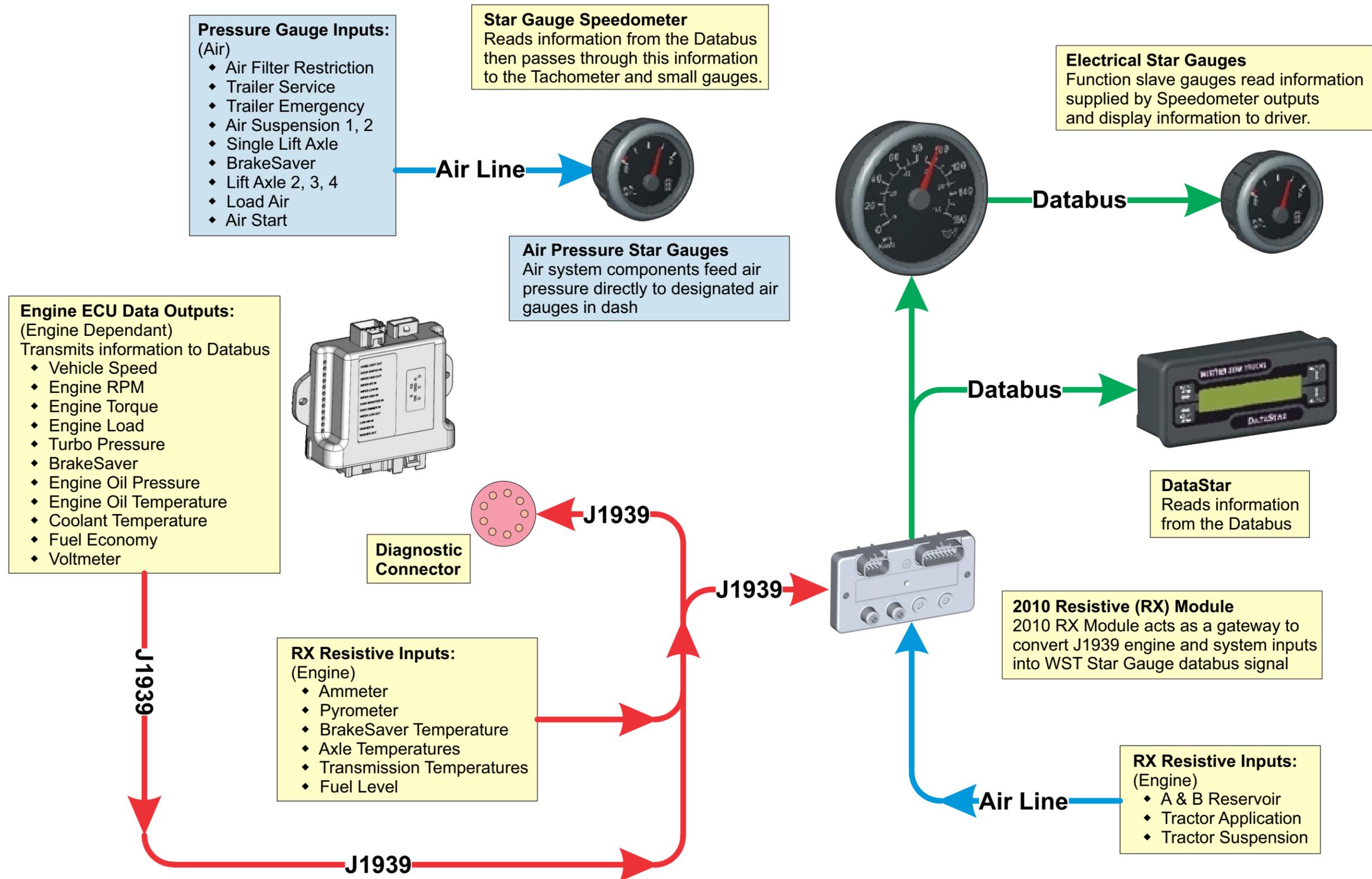
The DataStar is also on the J1587 (PI bus) network and uses this data. The RX gateway module is located on the underside of the cab below the steering shaft, near the clutch linkage.

24 to 12 Volt Converter

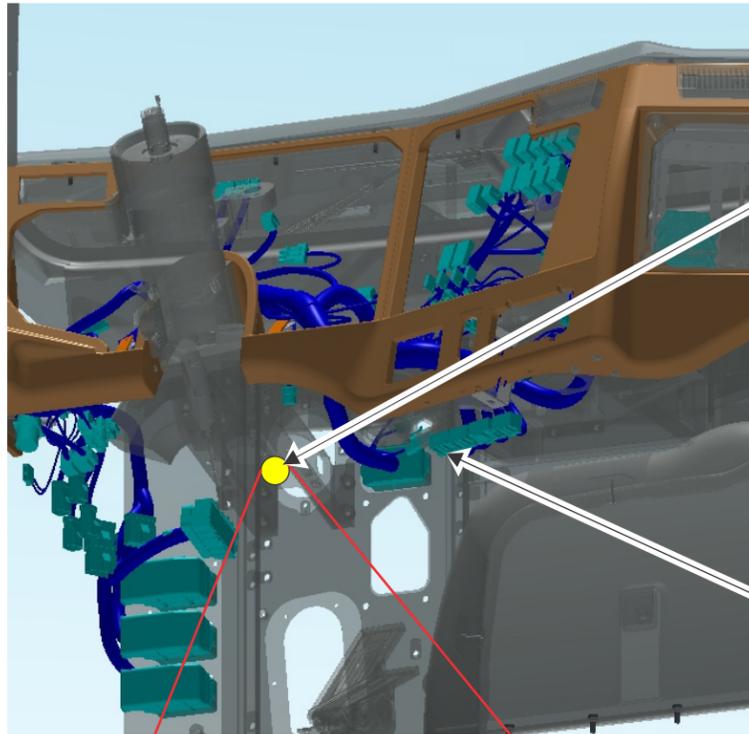
The 24 to 12 volt converter is used on vehicles with 24 volt electrical systems. It is connected between the speedometer and the dash wiring harness and reduces voltage to 13.5 volts, which is needed by the Star Gauge and DataStar system.



Star Gauge System

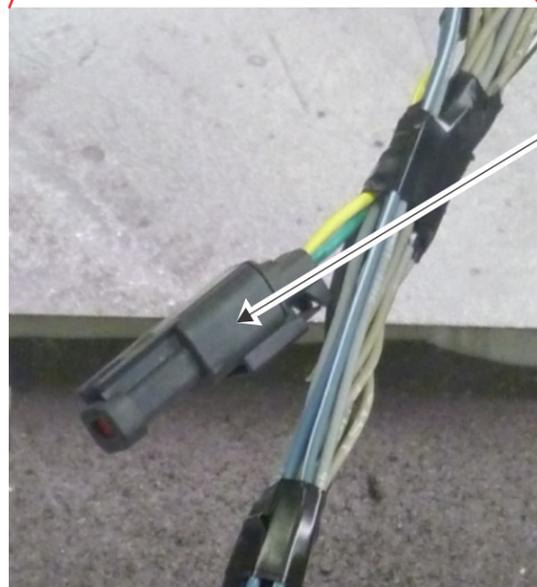


J1939 Connection

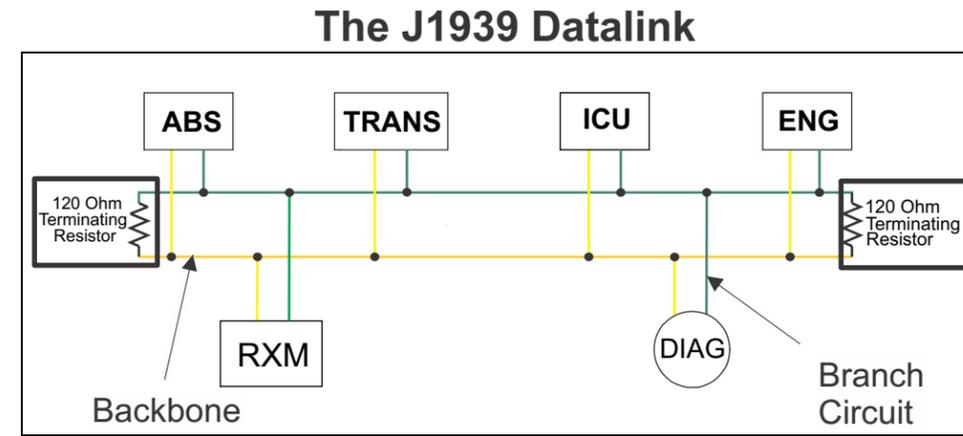
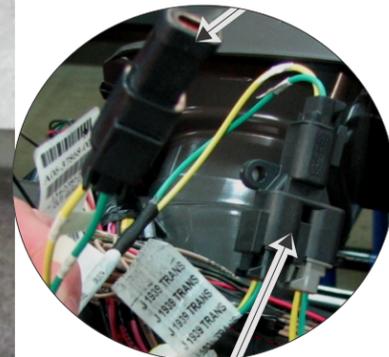


Cab resistor located in dash 10" back from frontwall engine connection

Front Wall Engine connection
40 pin 48/49/6900
76 pin 4700



Resistor Receptacle
Part FTL# 23-13303-902
Deutsch # DTM04 - 2P - EP10



WST J1939 System Connections

J1939 Connections

Tying into the J1939 backbone is accomplished by tapping into the system resistor tee's located at each end of the backbone.

The Chassis terminating resistor is located in a tee along the left frame rail, usually behind the cab.

The cab terminating resistor is located in the dash tapped 10" back from the Front Wall engine plug harness Under the dash (shown on the left). The correct datalink resistance measured at any device, or at the diagnostic plug should be 60 Ohms with the battery disconnected.

2015 and older Western Star units have a 250KB data rate interface at both the diagnostic plug and the center tie in points.

2016 and newer units have a new 500K J1939 interface for the diagnostic plug and main engine/transmission Signals. A 250KB gateway is provided for connecting to the system and is located at the center of the dash console near the RH side of the steering column.

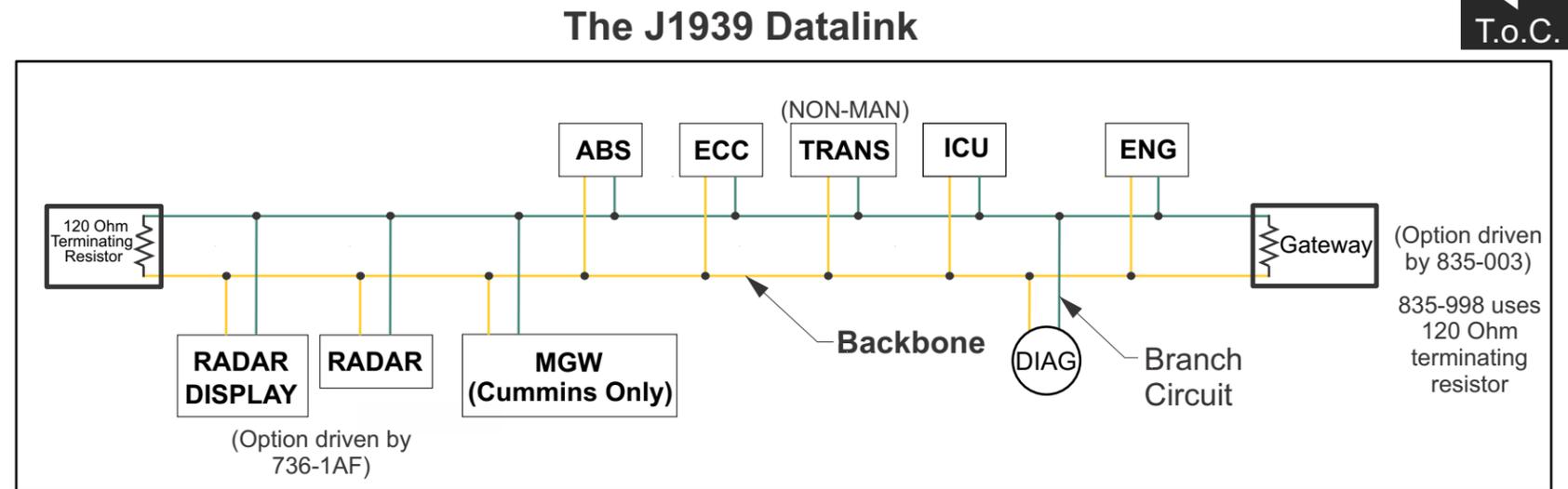
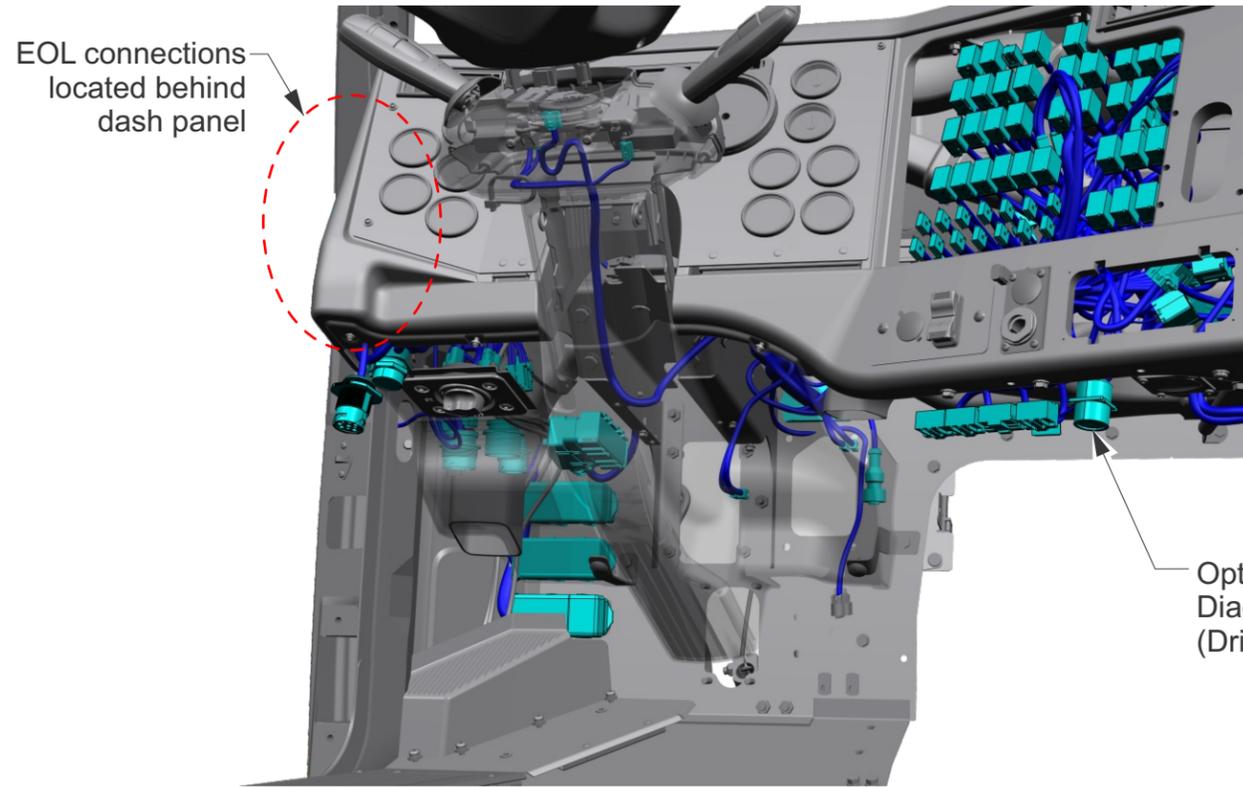
IMPORTANT:

- It is essential that both terminating resistors remain connected to the ends of the J1939 backbone to dampen feedback signals. Numerous J1939 problems can be attributed to terminated that are missing or disconnected.
- If connections under dash become disconnected, connections should never be reconnected back together directly e.g., ABS with ABS as this creates an independent circuit in the system that is not connected to the backbone.

J1939 Connections for Body Builders

To connect easily to J1939 at dash location order the following parts:

- (1) Tee and Jumper FTL# A06-37868-000
- (1) Jumper Plug # DUFDTM06 2S E004
- (2) Female Pins DUFWM2SB



Optional 250K Diagnostic Connector (Driven by 160-039)

WST J1939 System Connections

J1939 Connections

Tying into the J1939 backbone is accomplished by tapping into the system using the terminating resistor tee's located at each end of the backbone.

2016 and newer units have a new 500K J1939 interface for the diagnostic plug and main engine/transmission signals. A 250KB gateway is provided for connecting to the system, the optional secondary diagnostic plug to access the 250K network, is located at the center of the dash console beneath the switch panel.

IMPORTANT:

- It is essential that both terminating resistors remain connected to the ends of the J1939 backbone to dampen feedback signals. Numerous J1939 problems can be attributed to terminated resistors that are missing or disconnected.
- If connections under dash become disconnected:
 - All J1939 500K circuits will be green/white striped and yellow/white striped wires.
 - All J1939 250K circuits will be solid green and solid yellow wires.
- Connections should never be reconnected back together directly e.g., ABS with ABS, as this creates an independent circuit in the system that is not connected to the backbone.



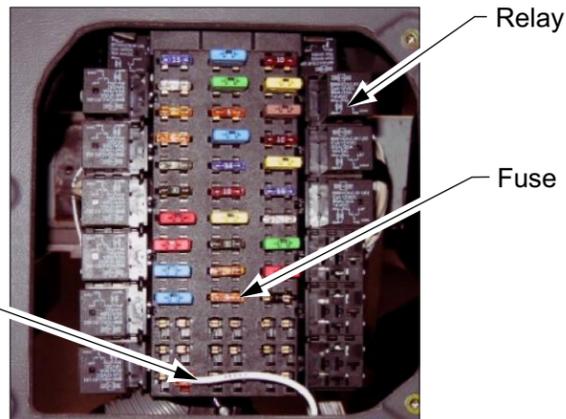
J1939 End of Line (EOL) Connections
(Image referencing Cummins EOL)

Fuse and Relay Blocks



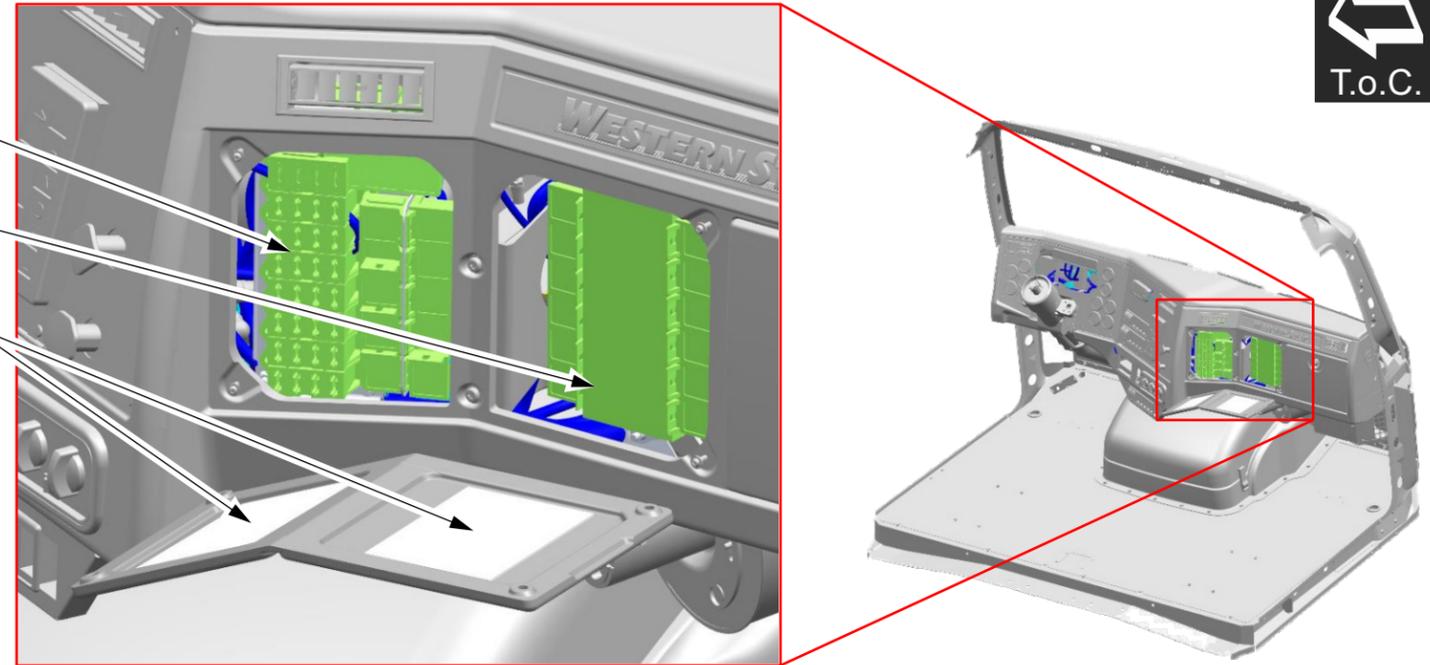
WST Fuse Panel

The WST Fuse Panel is equipped with 30 fuses, 14 relays, and 18 power jumpers. The fuse and relay locations are standard as shown but may be changed by engineering to accommodate new designs. Refer to the "Main Cab Harness" schematic in Mod 320 to find the specific information on these items. The fuse panel jumper slots provide for 18 additional power jumpers, which provide power.



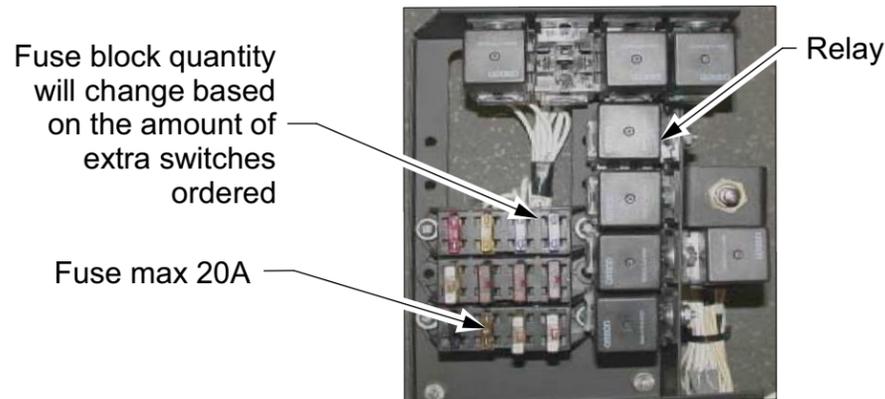
Main Fuse Panel

Optional Fuse Panel Module 285
Main Fuse Panel Module 285
Fuse/Relay Panel Labels



Optional Fuse/Relay Panel

Optional fuse panels are used to support additional switches and other custom options. The WST system is designed to support up to 24 fuses and 14 relays or, alternatively, up to 28 fuses and 10 relays. Additional fuse blocks and switches can be ordered for customer use, see the Section 1D for more information.



Optional Fuse Panel

Main Fuse Panel Label

24-01910-000 REV A				S/N:	
ACCESSORY POWER R015	31	SOUND SYS 15A T2 F021 ACC 21	TRCTR MRKR 15A T2 F011 BAT 11	START SW 10A T2 F001 BAT 1	IGNITION POWER R014
HVAC COMPRESSOR R007	32	F212	TRLR MRKR 30A T2 F012 BAT 12	PARK LTS 20A T2 F002 BAT 2	HORN R001
SERVICE BRAKE R127	33	HTD MIR/CIG 20A T2 F023 ACC 23	ECC PWR 7.5A T2 F030 BAT 13	HDLP SW 7.5A T1 F003 BAT 3	TRACTOR MRKR LT R002
HIGH BEAM CONTROL R009	34	WIPER SW 7.5A T2 F024 ACC 24	DRL 15A T2 F146 BAT 14	RADIO 10A T2 F004 BAT 4	TRAILER MRKR LT R003
LOW BEAM CONTROL R010	35	ACC SIG 7.5A T2 F025 ACC 25	ABS BAT 15A T2 F044 BAT 15	FLASHER 20A T2 F005 BAT 5	DRIVING LIGHTS R004
TRAILER BRAKE LT R011	36	CAB HVAC 30A FU F027 ACC 26	ABS IGN 10A T2 F045 IGN 16	CAB INT LT 15A T2 F006 BAT 6	FOG LIGHTS R005
TAIL LIGHTS R006	37	LH LOW BM 10A T1 F019 28	BACKUP LTS 20A T2 F015 IGN 17	WPR MOTOR 25A T2 F017 BAT 7	SPARE R___
		LH HIGH BM 15A T1 F029 29	IGN SIG 10A FU F047 IGN 19	BRAKE LT 30A T2 F008 BAT 8	
		RH HIGH BM 15A T1 F028 30	DRYER 7.5A T2 F020 IGN 20	HORN 7.5A T2 F010 BAT 10	

Optional Fuse/Relay Panel Label

24-01909-000 REV A				S/N:	
ABS CHECK SWITCH	38				
NAV 15A FU F299 ACC 28	39	BEACON 20A T2 F241 ACC 27	OPT SW 5 15A T2 F085 ACC 26	OPT SW 4 15A T2 F084 ACC 25	LH RR TRN SELF-CAN R135
3RD LIFT 15A FU F048 ACC 24	40	MIR CTRL 10A T2 F043 ACC 23	WINDOWS 30A FU F040 ACC 22	OPT SW 3 15A T2 F039 ACC 21	ADD'L LOW BEAM R162
OPT SW 2 15A T2 F038 ACC 20	41	OPT SW 1 15A T2 F037 ACC 19	GATEWAY 2A FU F300 IGN 18	UTIL LT 2 15A T2 F258 IGN 17	DRL OVERRIDE R098
UTIL LT 1 15A T2 F257 IGN 16	42	TRLR IGN 20A T2 F094 IGN 15	FWS 30A T2 F080 IGN 14	ENG IGN 5A FU F033 IGN 13	EXTERIOR LIGHTS R071
AUX LTS 15A T2 F013 IGN 12	43	12V OUT 2 15A T2 F251 BAT 11	HAZARD 5A FU F217 BAT 10	12V OUT 1 15A T2 F208 BAT 9	RH FW TRN SELF-CAN R138
DOOR LOCKS 15A T2 F149 BAT 8	44	CAB EXT LT 25A T2 F129 BAT 7	ADDL LOW 10A T1 F115 BAT 6	ADDL HIGH 15A T1 F114 BAT 5	ADD'L LOW BEAM R062
ADDL LOW 10A T1 F069 BAT 4		ADDL HIGH 15A T1 F068 BAT 3	VHF RADIO 1A FU F041 BAT 2	DIAGNOSTICS 10A FU F032 BAT 1	ADD'L HIGH BEAM R061

Note: Example fuse/relay panel labels shown. Refer to the labels on the vehicle for truck specific information. Labels located behind the dash covers.

Fuse / Relay Panels - Power

PDM 3 – Fuses			
Description	Cavity	Position	Connector
Keep Alive Spare	B20	F26	35
Keep Alive Spare	B22	F32	35
ACC Spare	B34	F31	34
ACC Spare	B33	F28	34
ACC Spare	B20	F24	34
IGN Spare	B36	F33	32
IGN Spare	A10	F34	32
Configurable Fuse ⚠	B1	VF1A/B	35
Configurable Fuse ⚠	B31	VF2A/B	35
Configurable Fuse ⚠	B2	VF3A/B	35
Configurable Fuse ⚠	B32	VF4A/B	35
Configurable Fuse ⚠	B3	VF5A/B	35
Configurable Fuse ⚠	B33	VF6A/B	35
Configurable Fuse ⚠	B4	VF7A/B	35
Configurable Fuse ⚠	B34	VF8A/B	35

PDM 3 – Relays			
Description	Cavity	Position	Connector
Expandable Relay	B19	VR1	32
	B14	VR1	32
	B8	VR1	32
	B7	VR1	32
	B20	VR1	32
Expandable Relay	B26	VR2	32
	B31	VR2	32
	B32	VR2	32
	A5	VR2	32
	B25	VR2	32
Expandable Relay	B11	VR3	32
	B16	VR3	32
	B22	VR3	32
	B23	VR3	32
	B10	VR3	32
Expandable Relay	B6	VR4	32
	A2	VR4	32
	A4	VR4	32
	B17	VR4	32
	B12	VR4	32
Expandable Relay	A6	VR5	32
	B24	VR5	32
	B30	VR5	32
	A8	VR5	32
	B18	VR5	32

PDM 1 – Fuses			
Description	Cavity	Position	Connector
IGN Spare 2	A6	F1	11

PDM 2 – Fuses			
Description	Cavity	Position	Connector
IGN Spare (shared)	B10	F50	22
ACC Spare (shared)	B22	F76	22
ACC Spare (shared)	B28	F76	22

NOTES:

- Any unused position can be used as needed for option addition as long as it does not violate the amperage requirements of the PDM or the installed components. See PDM drawing and circuit diagram for allowable fuse/circuit-breaker/relay allocations.

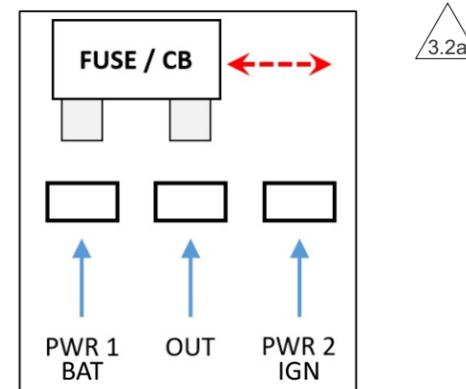
⚠ Three cavity/two legged fuses have BAT power on cavity A and IGN power on cavity B. To change the power source type, move the fuse to the proper cavity. Middle cavity provides output. See image.

Connector Terminals

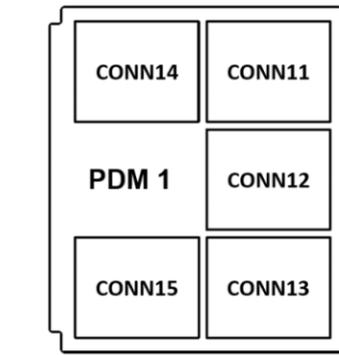
Connector Terminals		
Cav.	Part-number	Size
A	23-13211-320	20; 20G; 20S; 18T; 18G; 18S; 16T; 16G
	23-13211-321	14T; 14G
	23-13211-322	12T; 12G
	23-13211-323	10T; 10G
B	23-13211-260	20T; 20G
	23-13211-261	20T; 18T; 18G; 18S; 16T; 16G
	23-13211-262	18T; 14T; 14G
	23-13211-263	12T; 12G

Note: T = TXL , G = GXL , S = SXL

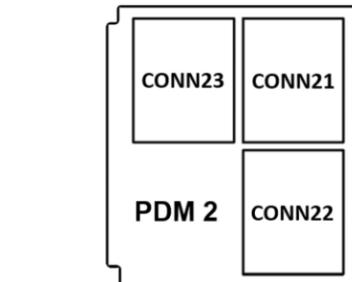
Three Cavity/Two Legged Fuse ⚠



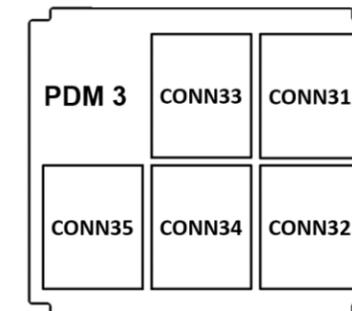
Connector Layouts (rear view)



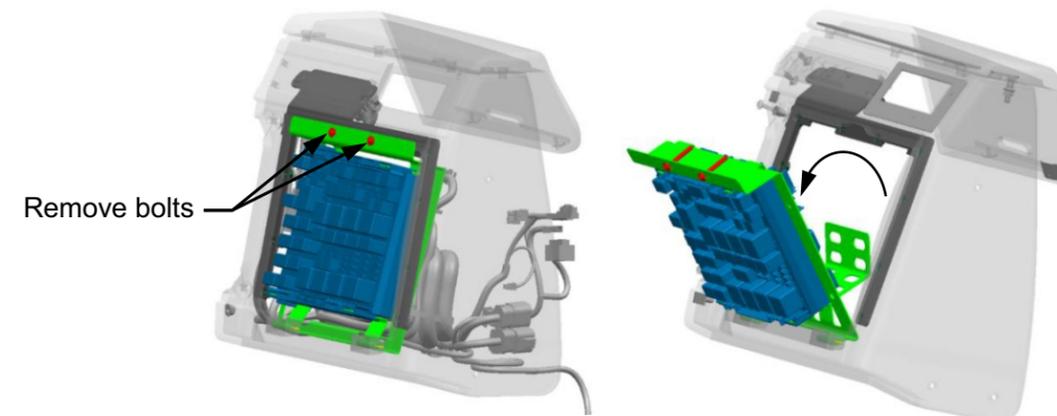
#	Color	Part Number
14	Dark Green	23-13662-026
11	Black	23-13662-023
12	Gray	23-13662-024
13	Brown	23-13662-025
15	Blue	23-13662-027



#	Color	Part Number
23	Brown	23-13662-016
21	Black	23-13662-023
22	Gray	23-13662-024



#	Color	Part Number
33	Brown	23-13662-016
31	Black	23-13662-014
32	Gray	23-13662-015
34	Dark Green	23-13662-017
35	Blue	23-13662-018



Note: PDM 3 is mounted on a rotating bracket. Bracket rotation provides access for servicing and customer additions. Bolt removal required.

Fuse and Relay Blocks - Service Bulletin



SS 1032982: WST 4700L/4800/4900/6900 3.2a Main Cab Harness Changes affecting Body Builder Interface

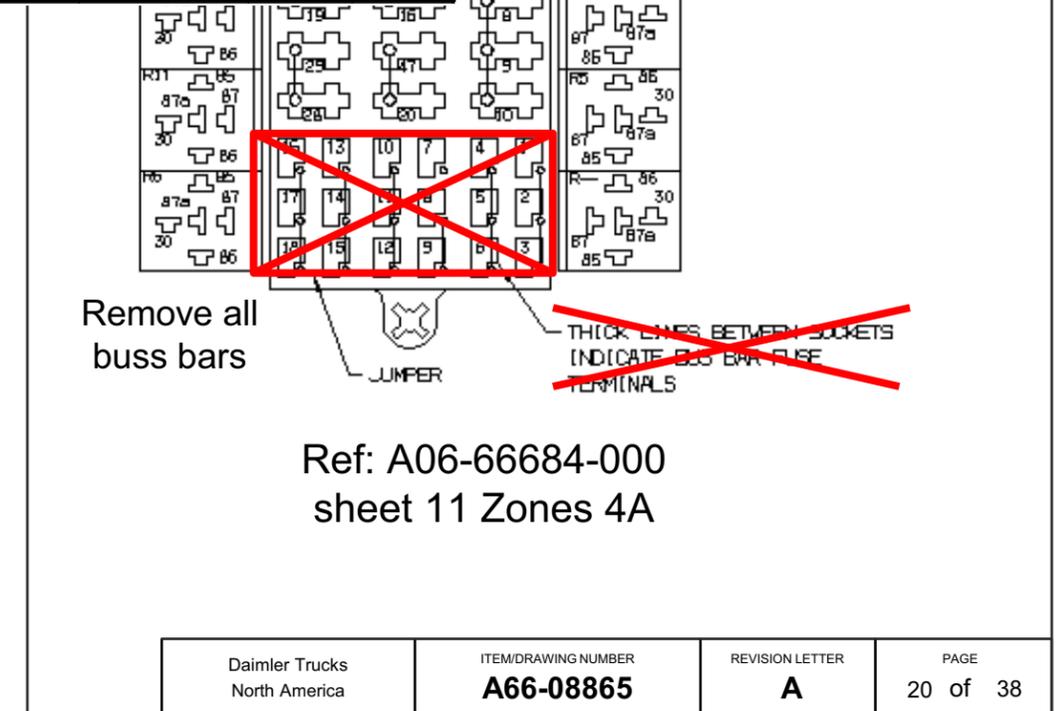
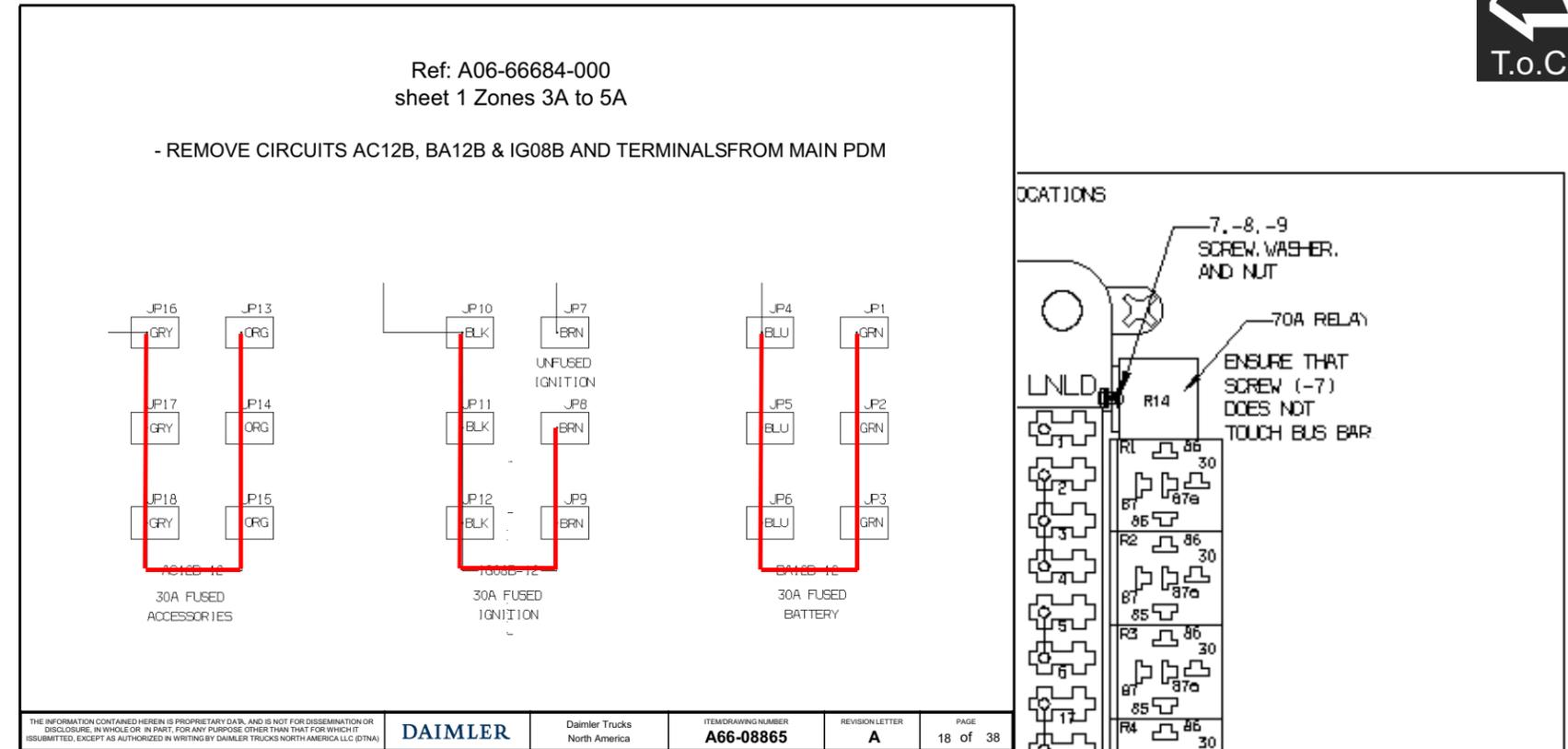
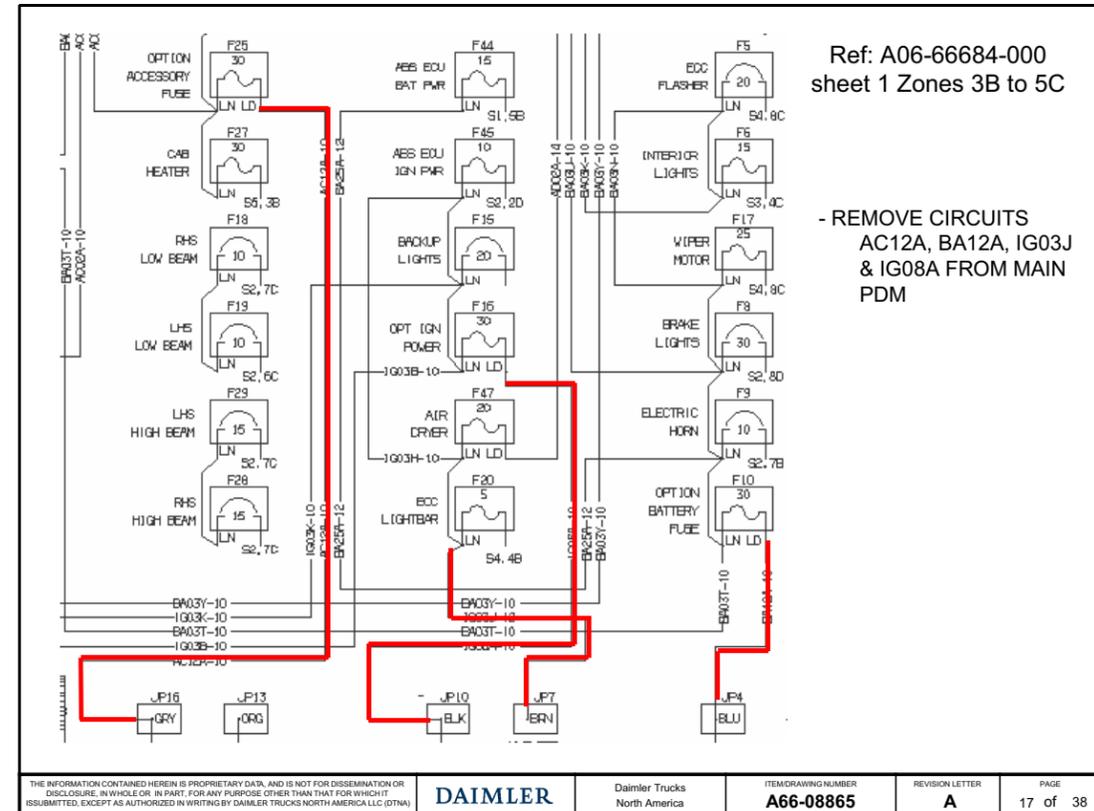
Symptom

Cab Harness wiring used by the Body Builder interface has been relocated and the connections changed.

Issue

Recent design changes to Main Cab Harness applied extensive modifications to Main Cab Harness that included the removal of the JP Plugs (Jp1 thru Jp18) that provided ignition, accessories, and battery connection points.

Design changes were prompted due to JP connectors and terminals being discontinued and soon will not be available in the market. New Body Builder wiring interface points are being provided. Details of removed/added connectors are shown below.

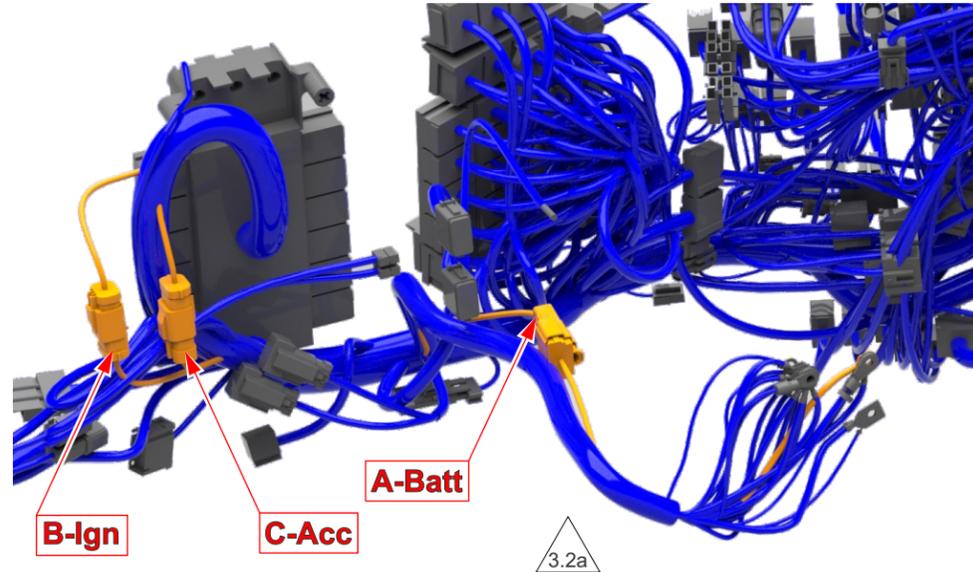
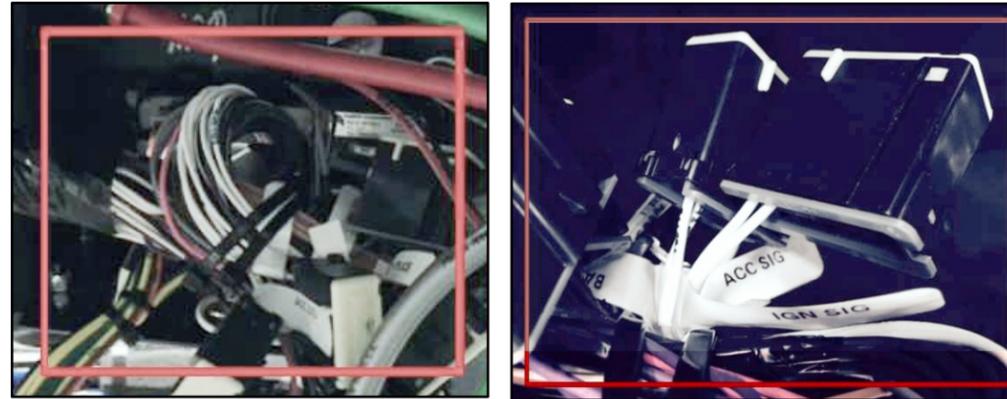


Cont. from 1A-26.

Solution

New Main Cab Harness designs provide two different locations to plug in to get Ignition, Accessory, and Battery power supply as is shown below:

- These are primary interface point for signal for low power, 3 new splice packs which are located behind the B-panel, along the main bundle, and will be labeled as BAT_SIG, IGN_SIG & ACC_SIG. Any unused cavity can be used in these splice packs. The max load of each of the splice packs is 10A, so they are intended for small loads and control circuits. Any of the following terminals can be used: 23-13213-140 (18-16 AWG). It is recommended that wire size be limited to 18GA (0.8MM) due to connector lock limitations. However, a 15GA (1MM) wire will fit with a modification to the terminal lock (not recommended).



New Main Cab Harness also provides new high power interface points. The new interface wires are shown in orange (not orange in real life). Here are the instructions on how to use these:

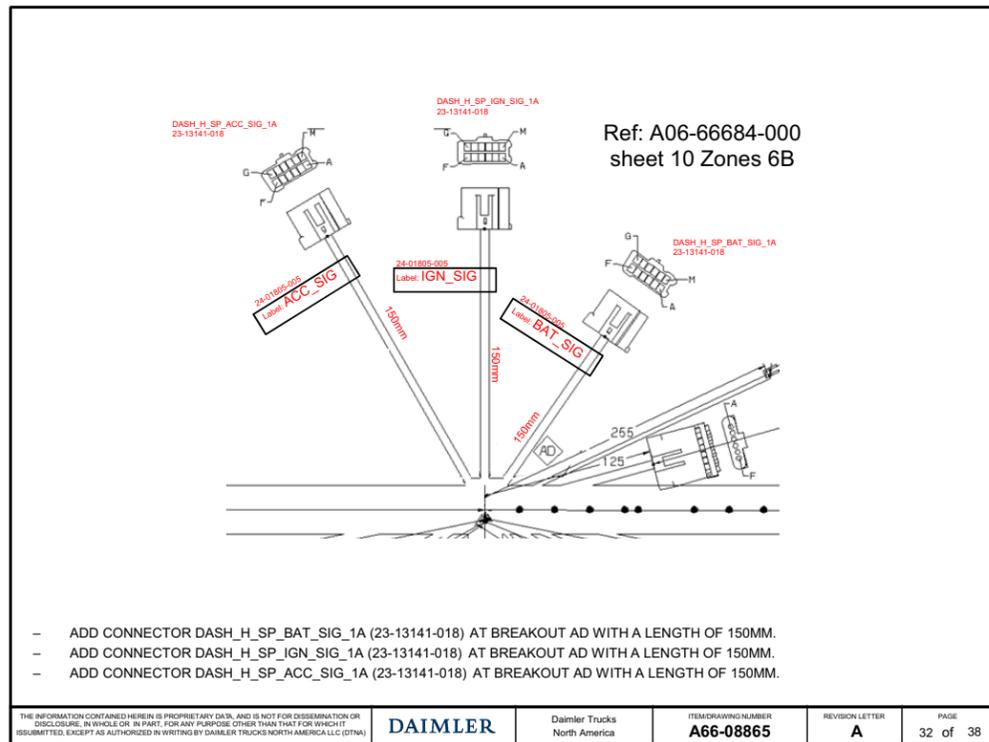
- a) Battery: This BLACK connector (A) set is located along the RH dash support bracket behind the AUX PDM. This consists of a mated pair of 6-way connectors. The connector closest to the frontwall will be completely populated and is the power supply (wires labeled 14). It's mate will have open cavities and is used sort of like a splice pack. Any open cavity can be used and it is recommended that the output be limited to 60A per pin. The actual circuit will support slightly more, but that is the recommendation. Any of these terminals can be used based on wire size: 23-13211-330 (20-16 AWG), 23-13211-331 (14 AWG), 23-13211-332 (12 AWG), & 23-13211-333 (10 AWG).

- b) Ignition: This GRAY connector (B) set is located on the harness just behind the main PDM along the service loop. This consists of a mated pair of 6-way connectors. The connector closest to the PDM will be completely populated and is the power supply (wires labeled 52). It's mate will have open cavities and is used sort of like a splice pack. Any open cavity can be used, it is recommended that the output be limited to 30A per pin. Keep in mind that this shares power with both the main and auxiliary PDM's and total active load is limited to 70A. Any of these terminals can be used based on wire size: 23-13211-011 (16-14 AWG) and 23-13211-012 (12-10 AWG).

- c) Accessory: This BLACK connector (C) set is located on the harness just behind the main PDM along the service loop. This consists of a mated pair of 6-way connectors. The connector closest to the PDM will be completely populated and is the power supply (wires labeled 305). It's mate will have open cavities and is used sort of like a splice pack. Any open cavity can be used and Engineering recommends that you limit the power to 30A per pin. Keep in mind that this shares power with both the main and auxiliary PDM's and total active load is limited to 70A. Any of these terminals can be used based on wire size: 23-13211-001 (16-14 AWG) and 23-13211-002 (12-10 AWG).

Ignition and Accessory Connectors can be accessed removing the Glove Box cover; The Battery Connector can be accessed removing the Aux PDM or reaching from under the dash panel.

Please contact your DSM or our WST Field Service Team if you have comments or questions.



- A second low power interface point is located near the 9-pin diagnostic connector on the LHS of the dash. It is labeled PWR SIG. This connection is supplied with a plugged black connector that can be used to pull a single power circuit for each type of power. These circuits are fed from the splice packs mentioned in section 3a, so the same power limitations apply. The Following terminals can be used: 23-13210-108 (18-16-AWG). It is recommended that wire size be limited to 18GA (0.8MM) due to current limitations. This 3-pin connector provides Battery (Cav A), Ignition (Cab B), and Accessory (Cav C).



In Cab Body Builder PDM

- Dedicated raceway to route wiring for body install
- Floor Tray accommodates (6) 1/2" bundles
- Raceway system provides access cover to route wires
- Cab access through access floor plate 4" pass-thru in cab floor
- In-cab body builder fuse and relay system isolates body controls from truck system for a simple and more reliable truck and Body integration operation

Body Builder PDM is Mandatory with the following high amperage switch options the PDM unit can be omitted in certain cases with these combinations where the body builder is supplying their own PDM (engineering review required)

- 329-068** - (4) 20 amp switches wired behind passenger seat
- 329-072** - (6) 20 amp switches wired behind passenger seat
- 329-076** - (10) 20 amp switches wired behind passenger seat

- 353-060** - Body lighting interface blunt cut wiring with fuse panel wire mounted between driver and passenger seats
- 353-061** - Body lighting interface blunt cut wiring with fuse panel wire mounted between driver and passenger seats with additional 150 amp service
- 353-062** - 150 amp service for body builder installed components driver and passenger seats



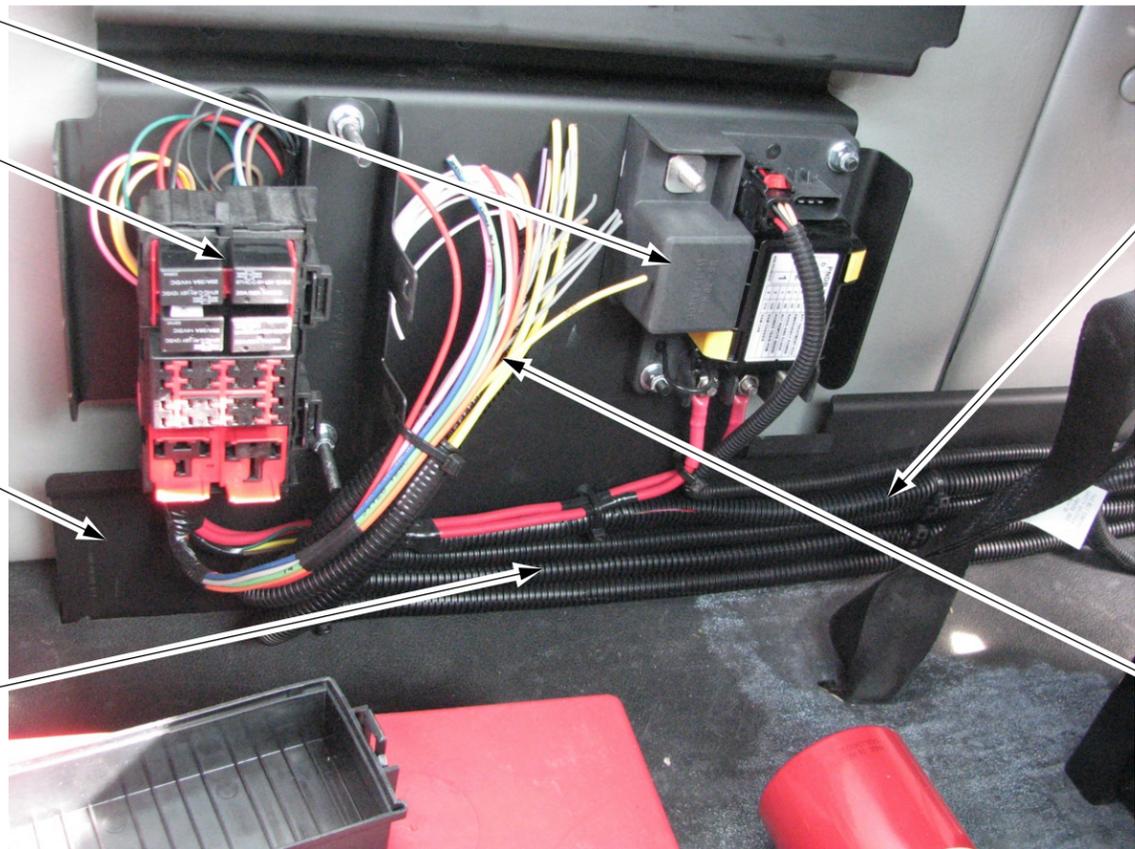
Note: The fuse panel option is not required in cases where Body Upfitters are installing their own PDM systems. If you are in doubt call ahead and check before ordering.
If a PDM system will be installed order the

AUXILIARY PNDB
Module 33P

Body Lighting PDM
Module 353

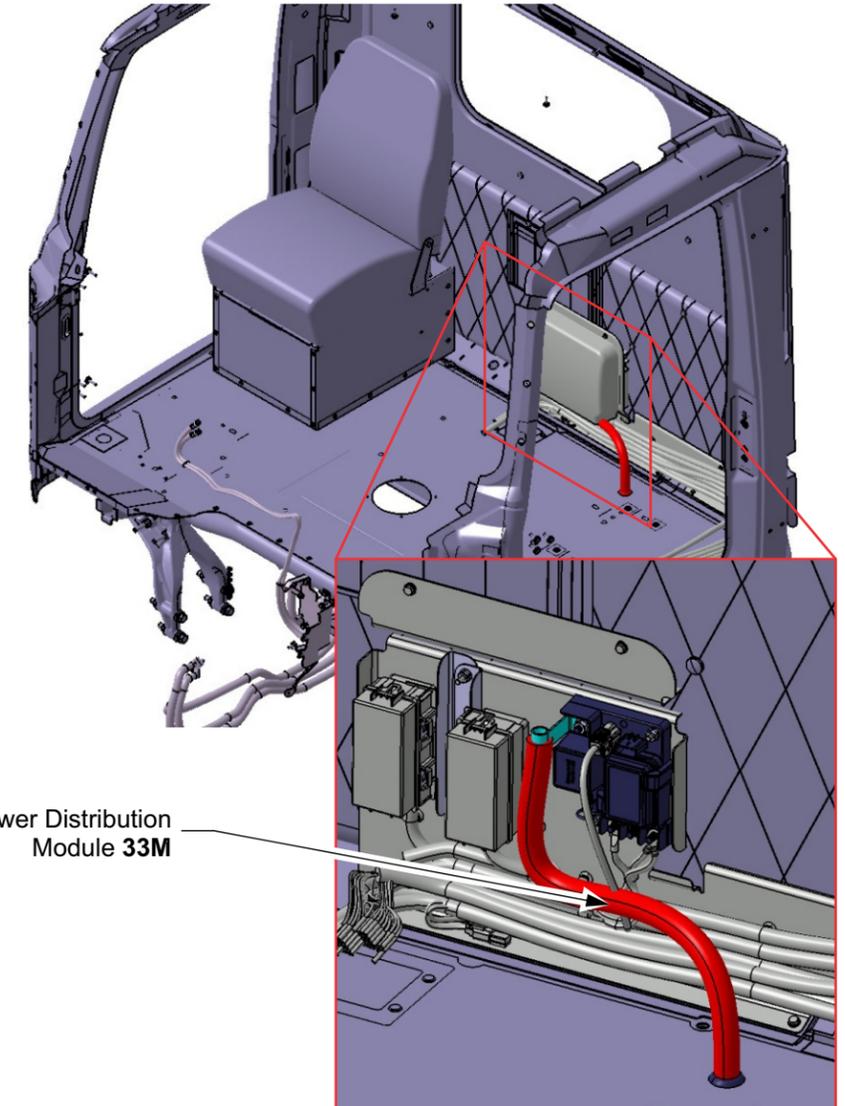
Mounting Bracket
Module 33M

Cab Aux
Power Cable
Module 33M



Cab Floor Harness
Module 287

Blunt cut switch connections
Pre wired to dash switches and
lighting PDM see schematic
Section 1 Page (1-31)
Module 329



Power Distribution
Module 33M



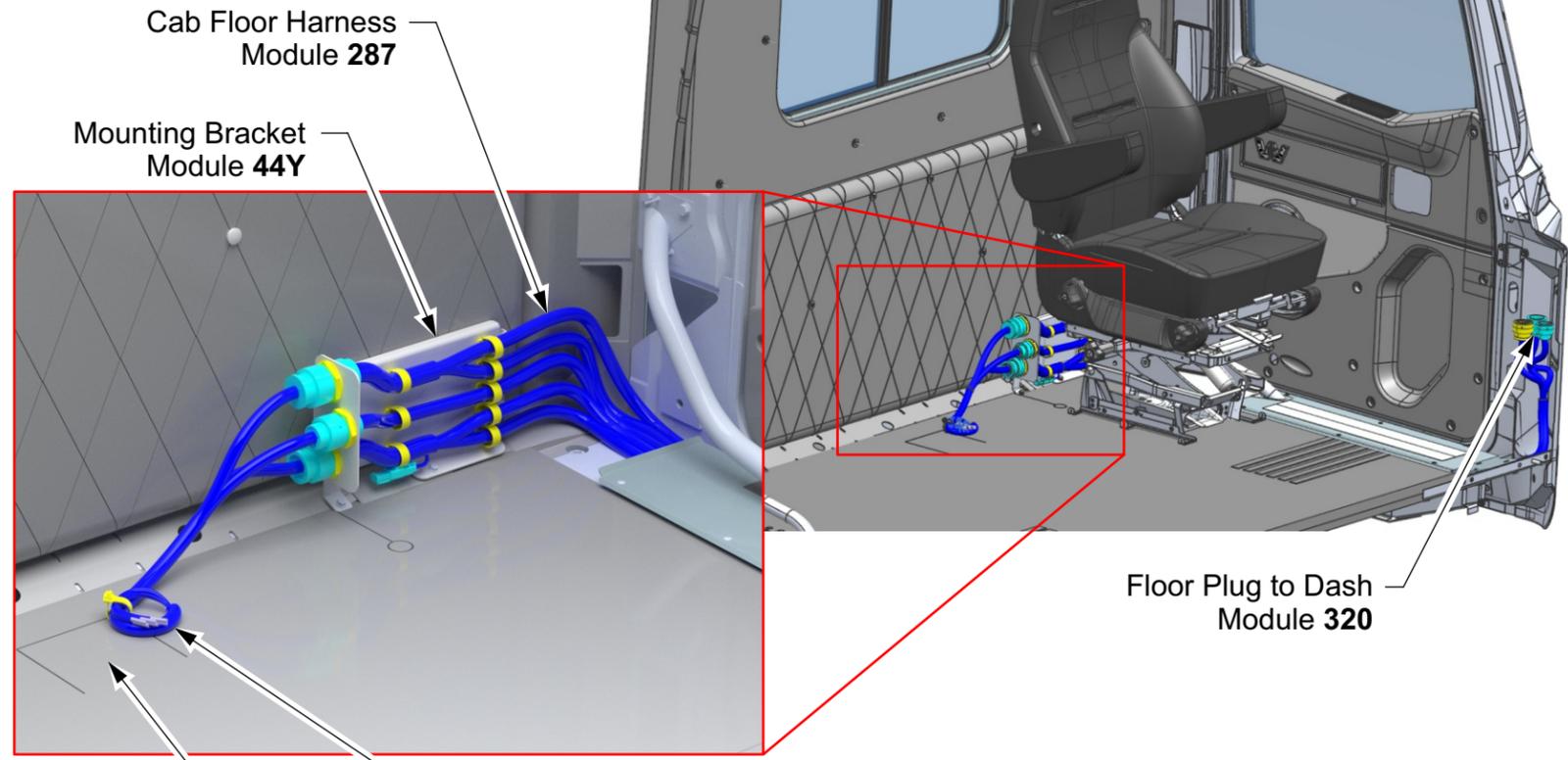
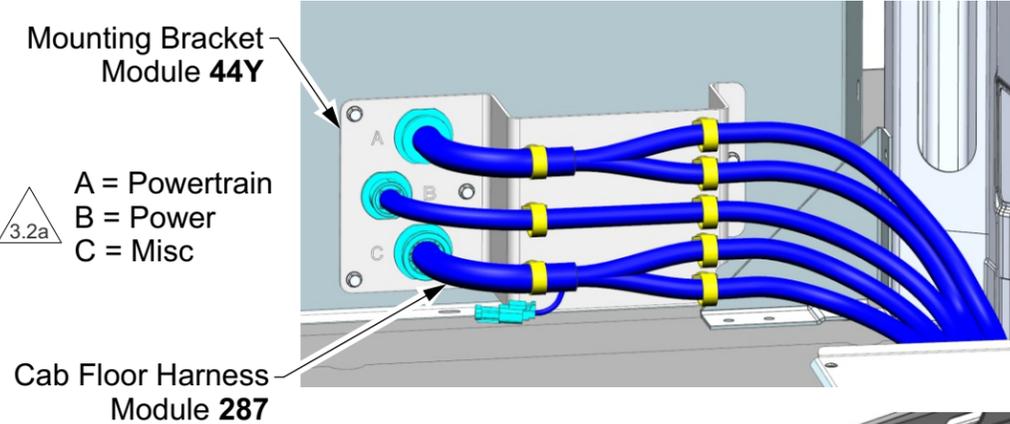
In Cab Body Builder PDM

- Dedicated raceway system to route wiring for body install with access cover
- Floor Tray accommodates (6) 1" bundles
- Cab access through access floor plate 4" pass-thru in cab floor
- In-cab body builder fuse and relay system isolates body controls from truck system for a simple and more reliable truck and body operation.

- 44Y-001 - customer interface connector located between seats with caps
- 44Y-002 - customer interface connector located between seats with bluntcuts
- 44Y-998 - no customer interface connector

Note:

- Body Builder connections also available on 40" sleeper, pass-thru not provided.
- For the connector labels shown below, Table A is specific to engine make. Tables B and C are not engine specific and are common to both labels.



Cummins

Detroit

CONNECTOR A					
CAV	WIRE	MOD	DESCRIPTION	I/O/S	AMP
1	-	-	SPARE	-	-
2	439S+	817	REMOTE SPEED SIGNAL	S	-
3	439S-	817	REMOTE SPEED RETURN	S	-
4	-	-	SPARE	-	-
5	-	-	SPARE	-	-
6	-	-	SPARE	-	-
7	483Z	148	CLEAN GROUND	O	5
8	492Y	148	VARIABLE SPEED GROUND	S	-
9	483D	148	VARIABLE SPEED +4V SUPPLY	S	-
10	483C	148	VARIABLE SPEED GOVERNOR	S	-
11	483N	148	REMOTE ACCEL SELECT	S	-
12	439V2	148	LIMITER 1	S	-
13	483E	148	TACHOMETER	S	-
14	439V1	148	LIMITER 0	S	-
15	492Z	148	THROTTLE INHIBIT	S	-
16	440E	148	CRUISE CONT SET/COAST	S	-
17	440D	148	CRUISE CONT ON/OFF	S	-
18	440F	148	CRUISE CONT RESUME/ACCEL	S	-
19	439A	148	IGNITION SIGNAL	O	5
20	-	32K	REMOTE TRANS INTFC (ALI)	I	2
21	497C3	34C	REMOTE TRANS INTFC (ALI)	S	-
22	497C4	34C	REMOTE TRANS INTFC (ALI)	S	-
23	497C8	34C	REMOTE TRANS INTFC (ALI)	S	-
24	497D1	34C	REMOTE TRANS INTFC (ALI)	S	-
25	497D4	34C	REMOTE TRANS INTFC (ALI)	S	-
26	497D6	34C	REMOTE TRANS INTFC (ALI)	S	-
27	497D11	34C	REMOTE TRANS INTFC (ALI)	S	-
28	497K1	34C	REMOTE TRANS INTFC (ALI)	S	-
29	-	32K	SMART RELAY INPUT 2	I	2
30	497C1	885	REMOTE TRANS INTFC (ALI)	S	-
31	497C7	885	REMOTE TRANS INTFC (ALI)	S	-
32	497D3	885	REMOTE TRANS INTFC (ALI)	S	-
33	497D5	885	REMOTE TRANS INTFC (ALI)	S	-
34	-	-	SPARE	-	-
35	497Y	34C	SIGNAL RETURN TCU	S	-
36	232E	34B	IGNITION POWER	S	-
37	497C6	34C	TRANS TEMP LAMP	S	-
38	-	32K	SMART RELAY OUTPUT 2	O	2
39	-	32K	SMART RELAY OUTPUT 3	O	2
40	-	32K	SMART RELAY OUTPUT 4	O	2
41	15D	156	REMOTE START (CRANK)	S	-
42	15E	156	REMOTE STOP (COMMON)	S	-
43	492P	156	REMOTE STOP (ENG STOP)	S	-
44	-	-	SPARE	-	-
45	536R	885	MACHINE MODE ENABLE	O	2
46	536S	885	MACHINE MODE DISABLE	O	2
47	536Z	885	MACHINE MODE COMMON	O	2

OR

CONNECTOR A					
CAV	WIRE	MOD	DESCRIPTION	I/O/S	AMP
1	-	-	SPARE	-	-
2	439S+	817	REMOTE SPEED SIGNAL	S	-
3	439S-	817	REMOTE SPEED RETURN	S	-
4	-	-	SPARE	-	-
5	-	-	SPARE	-	-
6	-	-	SPARE	-	-
7	483Z	148	CLEAN GROUND	O	5
8	492Y	148	VARIABLE SPEED GROUND	S	-
9	483D	148	VARIABLE SPEED +4V SUPPLY	S	-
10	483C	148	VARIABLE SPEED GOVERNOR	S	-
11	483N	148	REMOTE ACCEL SELECT	S	-
12	439V2	148	LIMITER 1	S	-
13	483E	148	TACHOMETER	S	-
14	439V1	148	LIMITER 0	S	-
15	492Z	148	THROTTLE INHIBIT	S	-
16	440E	148	CRUISE CONT SET/	S	-
17	440D	148	CRUISE CONT ON/OFF	S	-
18	440F	148	CRUISE CONT RESUME/ACCEL	S	-
19	439A	148	IGNITION SIGNAL	O	5
20	-	32K	SMART RELAY INPUT 1	I	2
21	497C3	34C	REMOTE TRANS INTFC (ALI)	S	-
22	497C4	34C	REMOTE TRANS INTFC (ALI)	S	-
23	497C8	34C	REMOTE TRANS INTFC (ALI)	S	-
24	497D1	34C	REMOTE TRANS INTFC (ALI)	S	-
25	497D4	34C	REMOTE TRANS INTFC (ALI)	S	-
26	497D6	34C	REMOTE TRANS INTFC (ALI)	S	-
27	497D11	34C	REMOTE TRANS INTFC (ALI)	S	-
28	497K1	34C	REMOTE TRANS INTFC (ALI)	S	-
29	-	32K	SMART RELAY INPUT 2	I	2
30	497C1	885	REMOTE TRANS INTFC (ALI)	S	-
31	497C7	885	REMOTE TRANS INTFC (ALI)	S	-
32	497D3	885	REMOTE TRANS INTFC (ALI)	S	-
33	497D5	885	REMOTE TRANS INTFC (ALI)	S	-
34	-	-	SPARE	-	-
35	497Y	34C	SIGNAL RETURN TCU	S	-
36	23E	34B	IGNITION POWER	S	-
37	497C6	34C	TRANS TEMP LAMP	S	-
38	-	32K	SMART RELAY OUTPUT 2	O	2
39	-	32K	SMART RELAY OUTPUT 3	O	2
40	-	32K	SMART RELAY OUTPUT 4	O	2
41	15D	156	REMOTE START (CRANK)	S	-
42	15E	156	REMOTE STOP (COMMON)	S	-
43	492P	156	REMOTE STOP (ENG STOP)	S	-
44	-	-	SPARE	-	-
45	536R	885	MACHINE MODE ENABLE	O	2
46	536S	885	MACHINE MODE DISABLE	O	2
47	536Z	885	MACHINE MODE COMMON	O	2

CONNECTOR B					
CAV	WIRE	MOD	DESCRIPTION	I/O/S	AMP
1	399H3	48F	FUSED POWER OUTPUT #1	O	30
2	399H4	48F	FUSED POWER OUTPUT #2	O	30
3	399H5	48F	FUSED POWER OUTPUT #3	O	30
4	399H6	48F	FUSED POWER OUTPUT #4	O	30
5	399H7	48F	FUSED POWER OUTPUT #5	O	30
6	GNDP	48F	OPTIONAL GND #1 (2)	O	50
7	GNDP	48F	OPTIONAL GND #2 (2)	O	50
8	GNDP	48F	OPTIONAL GND #3 (2)	O	50

CONNECTOR C					
CAV	WIRE	MOD	DESCRIPTION	I/O/S	AMP
1	399A	4C1	HW SW #1 OUT 1	O	30
2	400M	4C1	HW SW #1 OUT 2	O	30
3	399C	4C2	HW SW #2 OUT 1	O	30
4	400N	4C2	HW SW #2 OUT 2	O	15
5	399E	4C3	HW SW #3 OUT 1	O	20
6	399G	4C4	HW SW #4 OUT 1	O	20
7	399V	4C5	HW SW #5 OUT 1	O	20
8	400B	4C6	HW SW #6 OUT 1	O	20
9	399W	4C7	HW SW #7 OUT 1	O	20
10	400T	4C8	HW SW #8 OUT 1	O	15
11	400C	4C8	HW SW #8 OUT 2	O	15
12	400S	4C5	HW SW #5 OUT 2	O	15
13	399X	4C9	HW SW #9 OUT 1	O	20
14	400R	4C4	HW SW #4 OUT 2	O	15
15	399Y	4D0	HW SW #10 OUT 1	O	20
16	400P	4C3	HW SW #3 OUT 2	O	15
17	23A	353	EXT LIGHTING (PARK)	O	20
18	120J	353	EXT LIGHTING (REVERSE)	O	10
19	38K	353	EXT LIGHTING (RIGHT TURN)	O	20
20	38J	353	EXT LIGHTING (LEFT TURN)	O	20
21	36E	353	EXT LIGHTING (STOP)	O	20
22	39L*	353	EXT LIGHTING (LH COMBO)	O	10
23	46B	353	EXT LIGHTING (MARKER)	O	20
24	39R*	353	EXT LIGHTING (RH COMBO)	O	10
25	52F	353	EXT LIGHTING (IGN)	O	20
26	453G	353	EXT LIGHTING (BAT)	O	20
27	1939-G	6TS	CAN INTFC (1939+1250K)	S	-
28	1939-G	6TS	CAN INTFC (1939-1250K)	S	-
29	541C	6TS	CAN INTFC (IGN)	O	10
30	541A	6TS	CAN INTFC (BAK -KA)	O	10
31	541B	6TS	CAN INTFC (BAT -SWITCD)	O	10
32	GNDE	6TS	CAN INTFC (GND)	O	15

1. MAX AMPERAGE SHOWN, ACTUAL VALUES WILL VARY
 2. SUM OF GROUNDS MUST NOT EXCEED 50 AMPS
 3. CONNECTOR POPULATION WILL VARY

3.2a

Note: Body Builder labels located on bracket

Pass-thru in Cab Floor Section 1A-29 / 1A-30

3.2a

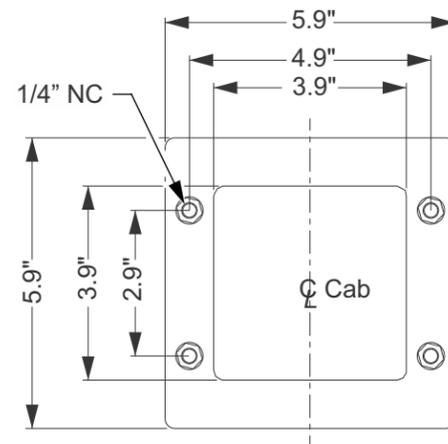
Included with 329-1AU, 329-1AV, 329-1AW, 329-1AX, 329-064
329-068, 329-072, 329-076 and 353-060 Options

See section 1B page 1B-17 for installation tips and schematics

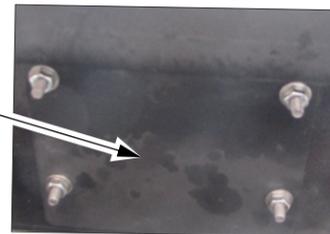


In Floor Tray Cover

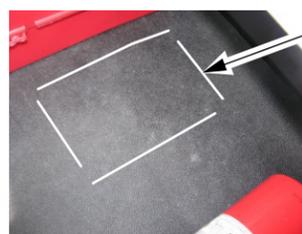
Easy access electrical tray makes adding cab harnesses easy in the field



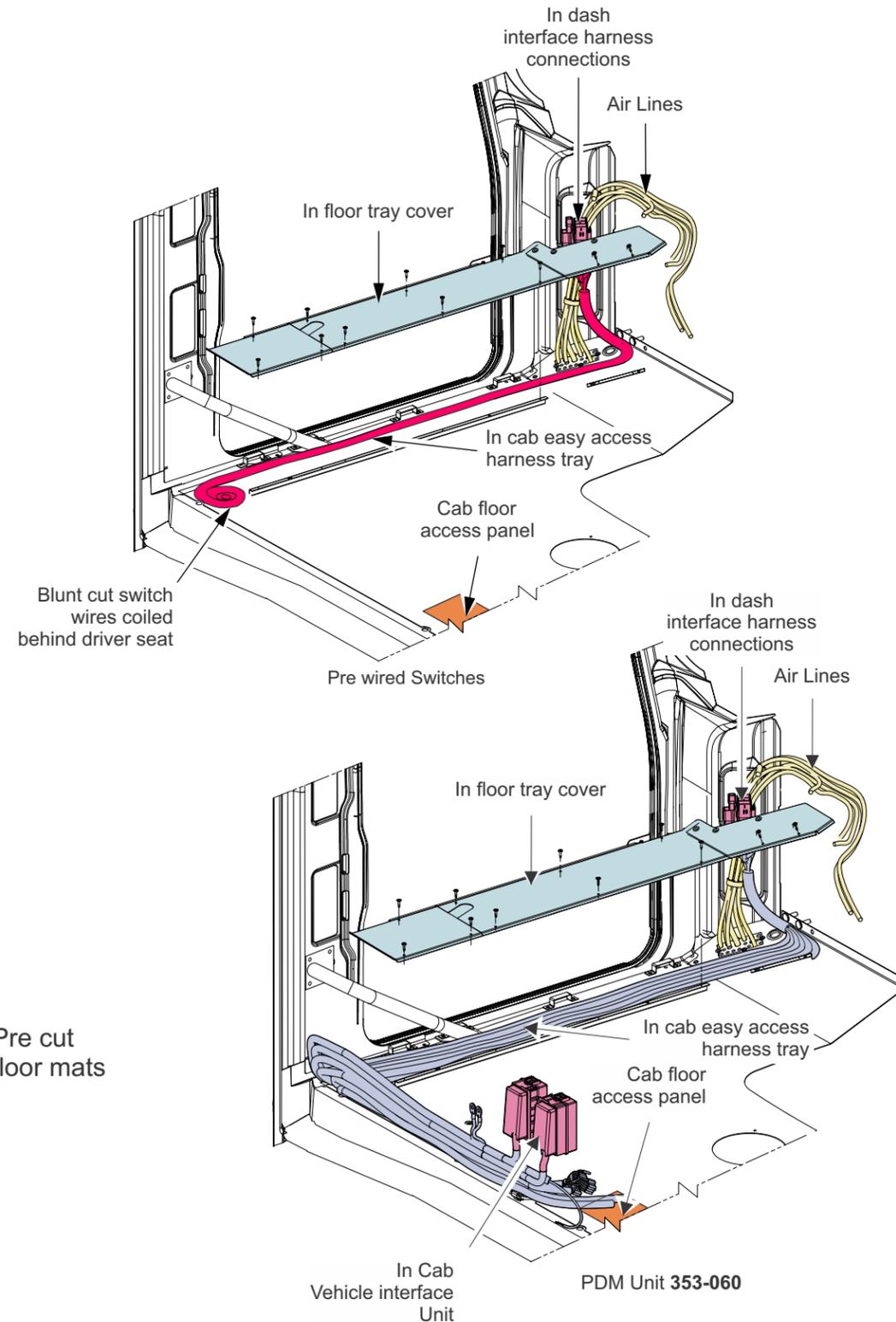
Easy Access Floor Plate



Cab Floor access



Pre cut floor mats



Cab Passthrough & Raceway 3.2a



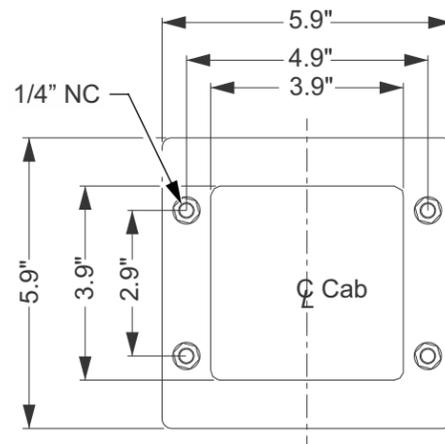
Included with:

- 705-056 Stainless steel sill plates with raceway 3.2a
- 705-057 Stainless steel sill plates and repto driveline access in cab floor w/raceway
- 705-058 Repto driveline access in cab floor with raceway
- 705-059 Raceway without miscellaneous custom cab requirements

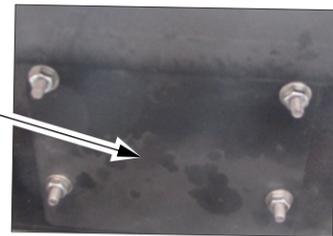


In Floor Tray Cover

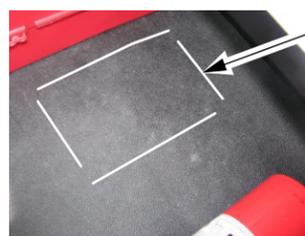
Easy access electrical tray makes adding cab harnesses easy in the field



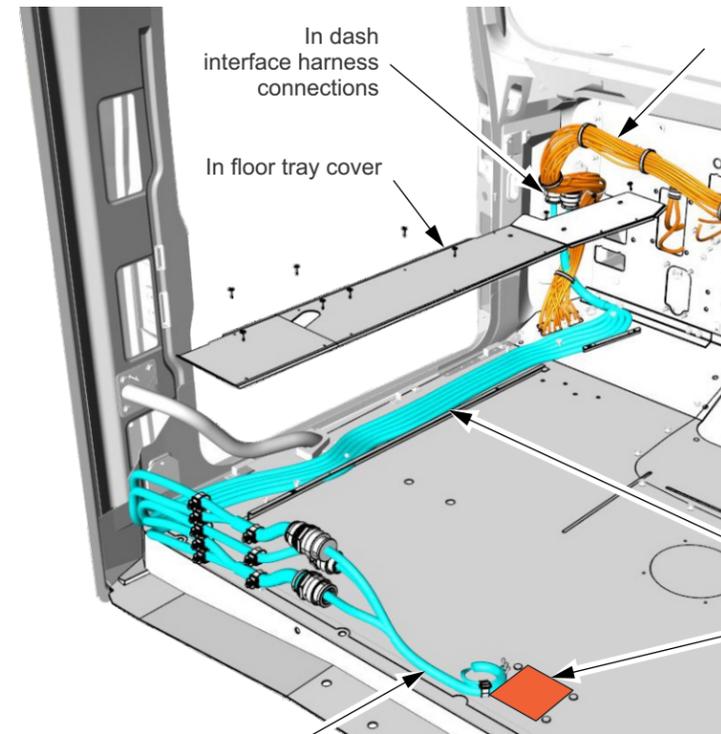
Easy Access Floor Plate



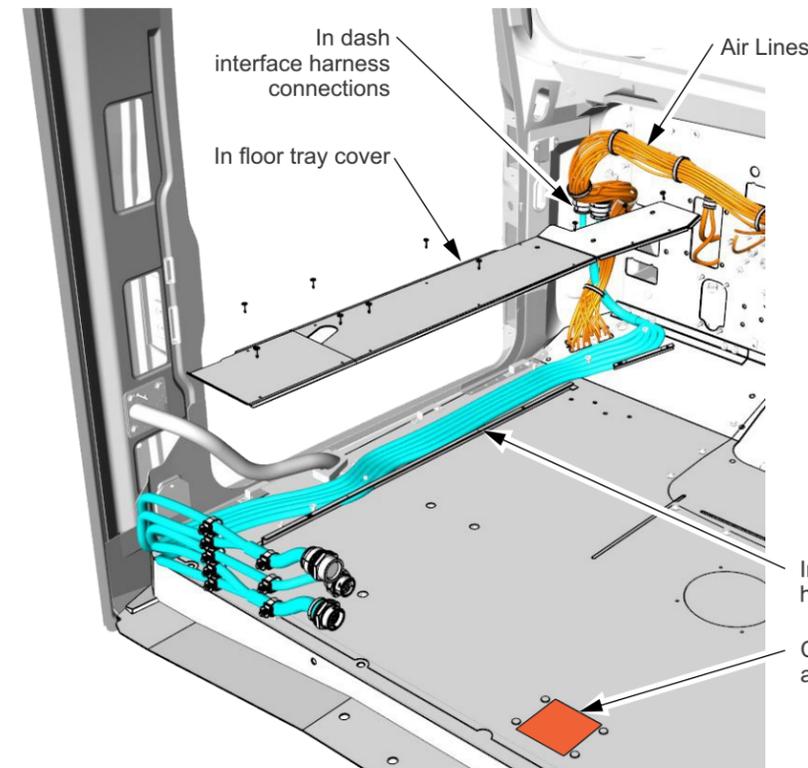
Cab Floor access



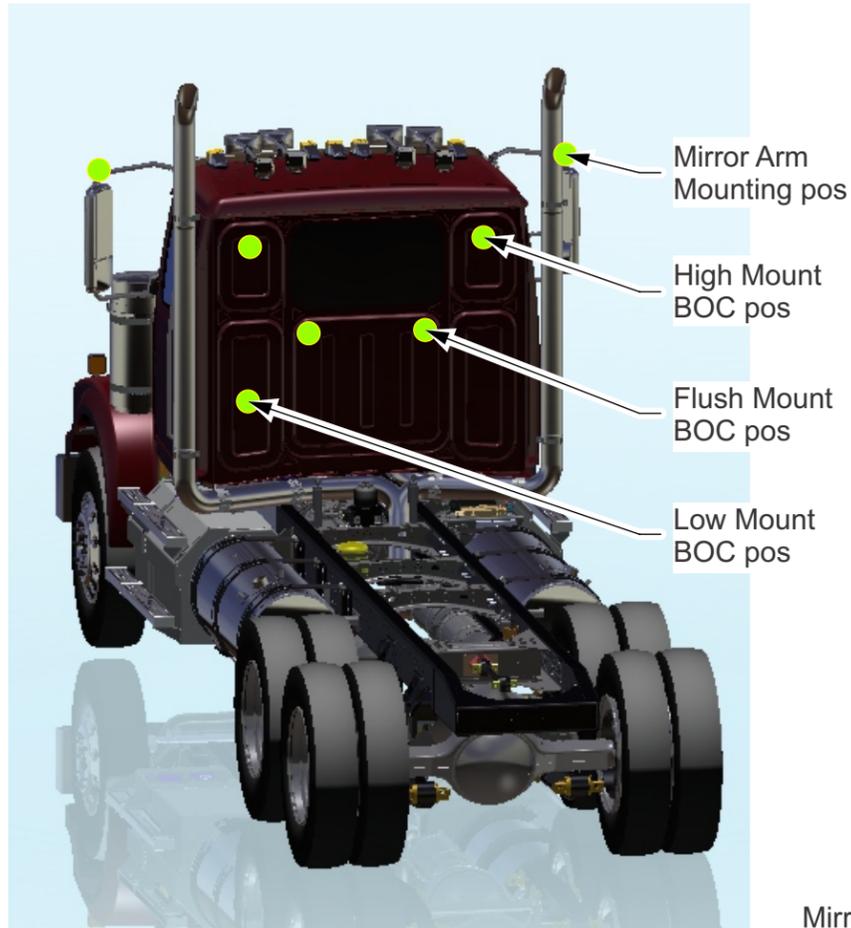
Pre cut floor mats



Blunt cut switch wires coiled behind driver seat

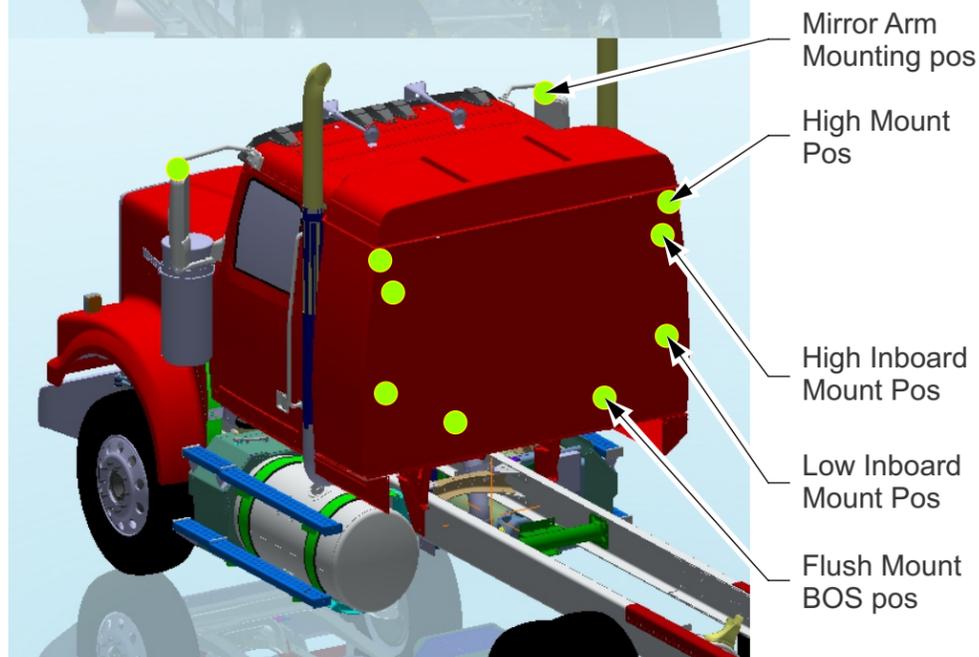


Utility Lights



Std. Incandescent Lighting (Models: 4700 Legacy/4800/4900/6900)

Incandescent	Package Description
31K-1A1	(2) Chrome incandescent utility lights with stainless steel anti-glare shields mounted on mirror arms
318-1BY	(2) Chrome swivel incandescent utility lights mounted LH and RH high on painted brackets back of cab
318-096	(2) Chrome swivel incandescent utility lights mounted low inboard on side extenders
318-1B0	(2) Chrome swivel incandescent utility lights mounted LH and RH high on stainless steel brackets back of sleeper
318-052	(2) Chrome swivel incandescent utility lights mounted high inboard on side extenders
318-085	(2) Swivel incandescent utility lights high inboard on side extenders and (2) flush mounted incandescent back of cab/sleeper
318-1AB	(2) Chrome swivel incandescent utility lights mounted low inboard on side extenders and (2) flush incandescent utility lights mounted back of cab/sleeper
318-1CG	(4) Utility lights: (2) chrome swivel incandescent mounted LH and RH high on stainless steel brackets back of sleeper and (2) flush mounted incandescent back of sleeper
318-1BX	(3) Chrome swivel incandescent utility lights: (2) mounted high on painted brackets LH and RH back of cab and (1) incandescent mounted low on painted bracket back of cab LH side
318-1CK	(1) Chrome swivel incandescent utility light mounted LH high on painted bracket back of cab
318-1CR	(1) Chrome swivel incandescent utility light mounted RH high on painted bracket back of cab
318-003	(1) Flush utility light mounted LH back of cab/sleeper
318-004	(2) Flush utility lights mounted back of cab/sleeper



LED Lighting (All Models)

New LED	Package Description
31K-001	(2) Chrome LED utility lights with stainless steel anti-glare shields mounted on mirror arms
318-1D9	(2) Chrome swivel LED utility lights mounted LH and RH high on painted brackets back of cab
318-1E0	(2) Chrome swivel LED utility lights mounted low inboard on side extenders
318-1E1	(2) Chrome swivel LED utility lights mounted LH and RH high on stainless steel brackets back of sleeper
318-1E2	(2) Chrome swivel LED utility lights mounted high inboard on side extenders
318-1E3	(2) Swivel LED utility lights high inboard on side extenders and (2) flush mounted back of cab/sleeper
318-1E4	(2) Chrome swivel LED utility lights mounted low inboard on side extenders and (2) flush incandescent utility lights mounted back of cab/sleeper
318-1E5	(4) Utility lights: (2) chrome swivel LED mounted LH and RH high on stainless steel brackets back of sleeper and (2) flush mounted incandescent back of sleeper
318-1E6	(3) Chrome swivel LED utility lights: (2) mounted high on painted brackets LH and RH back of cab and (1) mounted low on painted bracket back of cab LH side
318-1E7	(1) Chrome swivel LED utility light mounted LH high on painted bracket back of cab
318-1E8	(1) Chrome swivel LED utility light mounted RH high on painted bracket back of cab

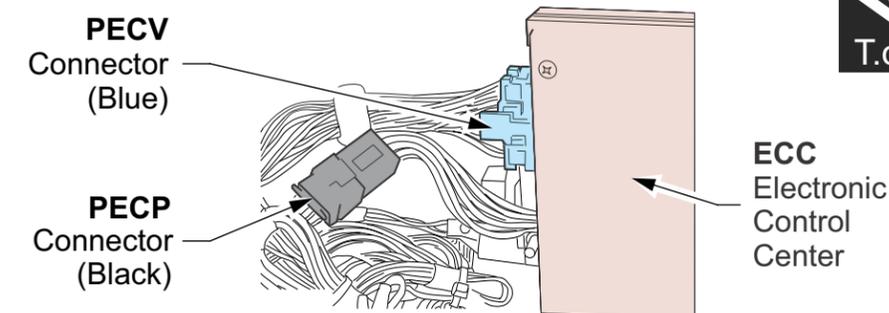
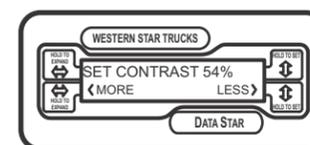
General Information

Western Star vehicles are built with DRLs enabled. If the vehicle is ordered with data code **311-998 (NO DAYTIME RUNNING LIGHTS)**, the DRLs are disabled during assembly. In most cases, wires are removed from the connector cavities to allow for future connection.

NOTE: Daytime Running Lights (DRLs) are required by law in Canada. Daimler Trucks North America recommends keeping DRLs operational in all locations, even where not required by law. The following instructions can be used to enable or disable DRLs where it is permissible to operate without day time running lights. **IMPORTANT:** If disabling the DRLs, do not cut the wires. Fold back and tape the wires to allow for connection in the future.

Vehicles without Star Gauge Dash, Built Prior to February 2002

1. Shut down the engine, set the parking brake, and chock the tires.
2. Disconnect the negative leads from the batteries.
3. Remove the four screws that secure the instrument panel, then pull the top of the panel forward to access instrument panel wiring. On vehicles with fixed steering columns, remove the bolts that hold the steering column to the dash assembly to lower the steering column for access.
4. Disconnect the blue **PECV** connector from the left-hand side of the Electronic Control Center (**ECC**).
5. Note the cavity location of wire **LB08A**, then tag the wire with that location so that the daytime running lights can be easily connected, if necessary.
6. If connecting the **DRLs**, locate wire **LB08A**; the wire should be folded back and taped off in the harness. Remove the tape and install the wire into its tagged location, then continue with step 8. If the location is not tagged and the vehicle uses harness **873b1-3570**, install wire **LB08A** into **cavity D1**, and continue with **step 8**.
7. If disconnecting the **DRLs**, remove wire **LB08A** from the connector, wrap the terminal end of the wire with electrical tape to prevent unintended connection, then secure the wire back to the harness with a tie-strap.
8. Connect the blue **PECV** connector to the **ECC**.
9. Disconnect the black **PECP** connector from the pigtail on the left-hand side of the **ECC**. The **ECC** pigtail to the black **PECP** connector has colored wires and mates to a headlamp harness connector with white wires.
10. On the white-wire headlamp harness side of the connector, note the cavity location of wire **HL08 (B, E, or G)**, then tag the wire with that location for possible future installation.
11. If connecting the **DRLs**, locate wire **HL08 (B, E, or G)**; the wire should be folded back and taped off in the harness. Remove the tape and install it into its tagged location. Continue with **step 13**. If the location is not tagged, and the vehicle uses harness **873b1-3570**, install wire **HL08 (B, E, or G)** into **cavity C**. Continue with **step 13**.
12. If disconnecting the **DRLs**, remove the wire from the connector, wrap the terminal of the wire with electrical tape to prevent unintended connection, then secure the wire back to the harness with a tie-strap.
13. Connect the **PECP** connectors.
14. Position the instrument panel and install the screws. If the steering column was lowered, position it into place, and tighten the steering column capscrews **17 lbf·ft (23 N·m)**.
15. Connect the batteries.
16. Verify correct operation of the lights.

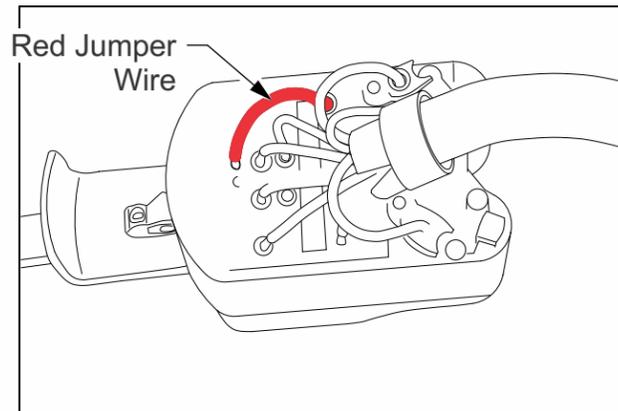


Vehicles with Star Gauge Dash, Built Since February 2002

1. Shut down the engine, set the parking brake, and chock the tires.
2. Disconnect the negative leads from the batteries.
3. Remove the four screws that secure the instrument panel, then pull the top of the panel forward to access instrument panel wiring. On vehicles with fixed steering columns, remove the bolts that hold the steering column to the dash assembly to lower the steering column for access.
4. Disconnect the light gray **PECV** connector from the left-hand side of the Electronic Control Center (**ECC**).
5. Find wire **LB08A** in **cavity A10**, then tag the wire with that location for possible future installation.
6. If connecting the **DRLs**, locate wire **LB08A**; the wire should be folded back and taped off in the harness. Remove the tape and install wire **LB08A** into **cavity A10**. Continue with **step 8**.
7. If disconnecting the **DRL**, remove the wire from the connector, wrap the terminal end of the wire with electrical tape to prevent unintended connection, then secure the wire back to the harness with a tie-strap.
8. Connect the **PECV** connector to the left-hand side of the **ECC**.
9. Disconnect the dark gray **PECP** connector from the left-hand side of the **ECC**.
10. Find wire **HL08H** (this wire may be **HL05B** in later models) in **cavity G**, then tag the wire with that location for future installation, if desired.
11. If connecting **DRLs**, locate wire **HL05H** (this wire may be **HL05B** in later models); the wire should be folded back and taped off in the harness. Remove the tape and install wire **HL05H** or **HL05B** into **cavity G**. Continue with **step 13**.
12. If disconnecting the **DRLs**, remove the wire from the connector, wrap the terminal of the wire with electrical tape to prevent unintended connection, then secure the wire back to the harness with a tie-strap.
13. Connect the **PECP** connector to the left-hand side of the **ECC**.
14. Position the instrument panel and install the screws. If the steering column was lowered, position it into place, and tighten the steering column capscrews **17 lbf·ft (23 N·m)**.
15. Reconnect the batteries.
16. Verify correct operation of the lights.

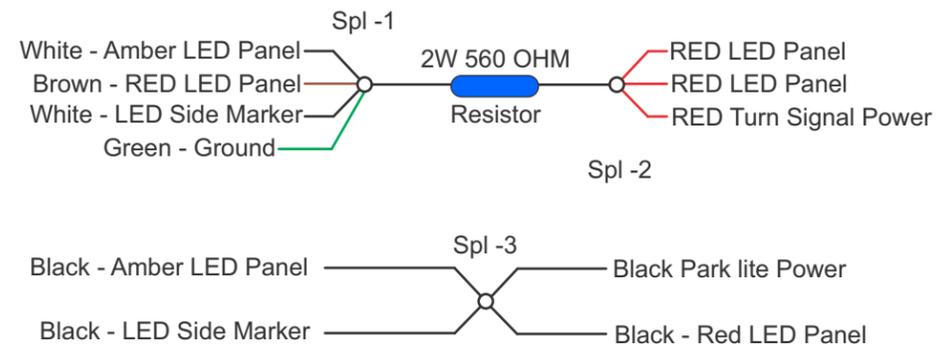
Turn Signal and Brake Override Circuit Elimination

Western Star Trucks turn signal switches are equipped with a brake override circuit. This circuit is designed to deactivate the 4-way flashers when the brakes are applied. In some vocations, customers prefer that the 4-way flashers remain flashing during use of the service brakes. To disable this feature, the red jumper wire located in the turn signal switch housing, used to activate this circuit needs simply to be cut and the ends taped or heat shrunk to remove this function. Both methods of wiring comply fully with Canada and USA regulations.



Installing Aftermarket LED Tail lights

Adding LED Tail Lights requires the addition of a 2 W 560 OHM resistor to ensure that the system consumes enough amperage for the system to function properly. Use the splice instructions below for installation of the aftermarket resistor.



Guideline For Repairing or Replacing a Harness

Repair	Replace
Less than 20% of the harness is damaged. If the wire damage is greater than 6 inches (15 cm), an overlay harness can be added to replace the section of damaged wire.	More than 20% of the harness is damaged.
Wire is smaller than 12-gauge.	Wire is 12-gauge or larger.
The harness is not readily available, or shipping will take longer than one week.	The harness can be obtained in less than a week.
<p>Wire insulation is cracked due to excessive heat from an external source. Repair is recommended if the damage is isolated to one section of the wire.</p> <p>There is a clean cut to the wire, corrosion is wick no more than 1 inch (2.5 cm) from the terminal end. If the damaged area is over 6 inches (15 cm), the harness can be repaired by adding overlay wiring over the damaged area.</p> <p>NOTE: If damage exceeds 1 inch (2.5 cm) from the terminal end, a quality repair may require adding a jumper wire to end, a quality repair may require adding a jumper wire to create enough slack in the wire. If adding extra splices stretches the wire too tightly it can degrade the integrity of the harness.</p>	Wire insulation is cracked due to age, or damage is extensive and spread throughout the wire.
Two harnesses are affected. For example, M2 24 pin lever lock connector (23-13144-010 and 23-13144-009) is corroded on both sides. Also, if the harness has minimal corrosion wick up the wire, the connectors can be re-pinned	The harness is proprietary, such as a datalink with sheathing over a twisted pair, or a WABCO sensor and solenoid wiring.
If the damaged area is over 6 inches (15 cm), the harness can be repaired by adding overlay wiring over the damaged area.	Extensive damage to the harness caused by foreign material such as DEF fluid, diesel fuel, or road/deicer fluid.

For complete information see Guidelines for Repairing or Replacing an Electrical Harness - Service Bulletin **54-61** in the Western Star Service Manual

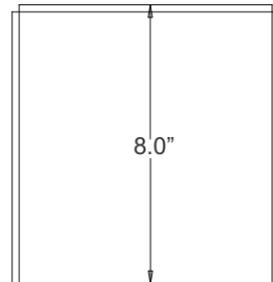
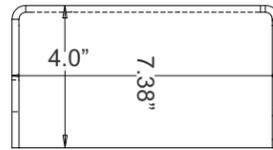
Tail Light Configurations



Partially protected Single Unit Tail lights mounted Under Frame

Taillight units are protected on three sides by a simple open box housing mounted under the end of frame.

294-040 - Boxed tail light (stop/tail/backup) mounted below the rails



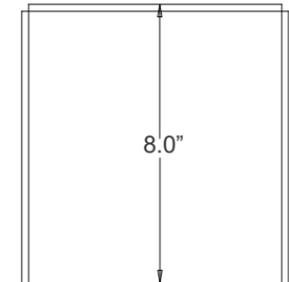
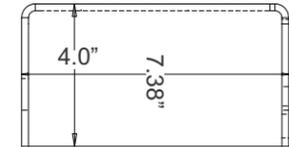
Partially protected Single Unit Tail lights mounted Outside of Frame

Taillight units are protected on three sides by a simple open box housing mounted on the outside of the frame.

294-049 - Boxed tail lights (stop/tail/backup) mounted outboard of rails

294-052 - Vsm dual sealed inboard of rail mounted stop/tail/turn/backup lights

294-1AC - Boxed tail light assembly (stop/tail/backup) mounted outboard of rails and inset 4" from end of frame



Unprotected Single Unit Tail lights

Taillight units are unprotected and mounted off brackets located on end of from crossmember.

294-032 - Flush mounted stop/tail/backup lights mounted below rear most crossmember

294-1AJ - Boxed tail light assembly with LED stop/tail/license plate lights and incandescent backup lights mounted below rear most Crossmember

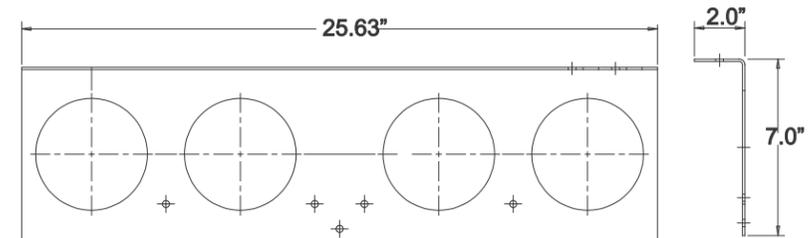


Partially Protected Single Unit Tail Lights Under Frame

Taillight units are supported from a simple angle plate mounted underend of from crossmember.

294-060 - LED stop/tail with separate backup lights mounted on polished aluminum plate end of frame

294-063 - Vsm dual sealed polished aluminum plate mounted stop/tail/turn/backup lights



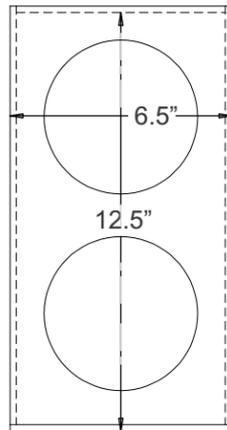
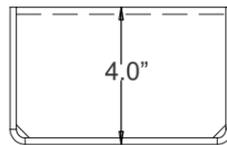
Tail Light Configurations



Fully Protected Tail lights Mounted Outside of Frame

Taillight units are fully boxed in on all sides by a simple sturdy box housing mounted on the outside of the frame.

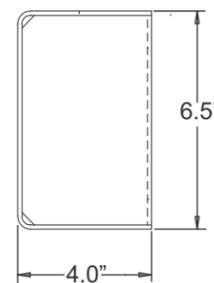
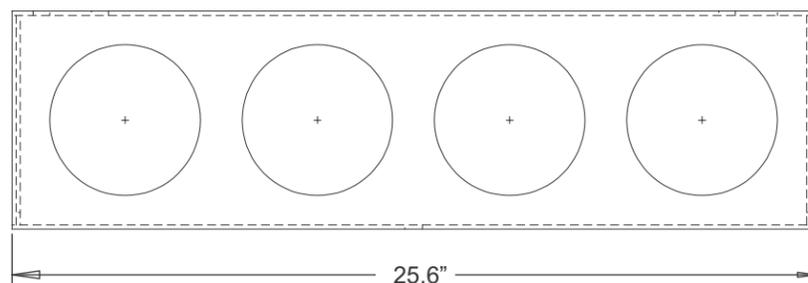
- 294-053** - Vsm dual sealed outboard of rail mounted stop/tail/turn/backup lights
- 294-057** - Grote torsion mount sealed stop/tail/turn lights in boxes outside of frame
- 294-079** - LED stop/tail with separate backup lights mounted in boxes outboard of rail



Fully Protected Separate Tail Lights Mounted Outside of Frame

Taillight units are fully boxed in on all sides by a simple sturdy box housing and mounted under the end of frame.

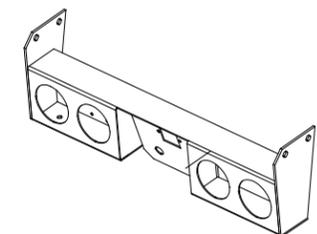
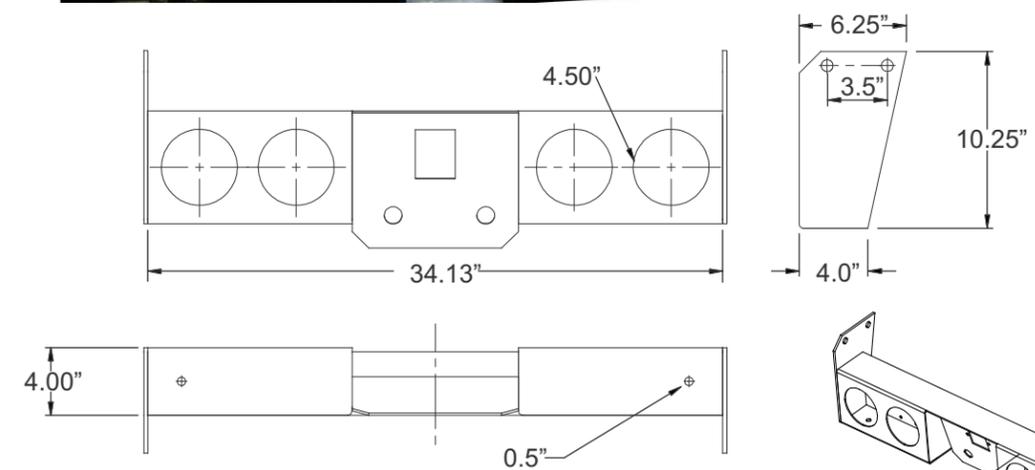
- 294-082** - LED stop/tail with separate backup lights mounted in box under end of frame
- 294-055** - Grote torsion mount sealed stop/tail/turn lights in box below tear crossmember



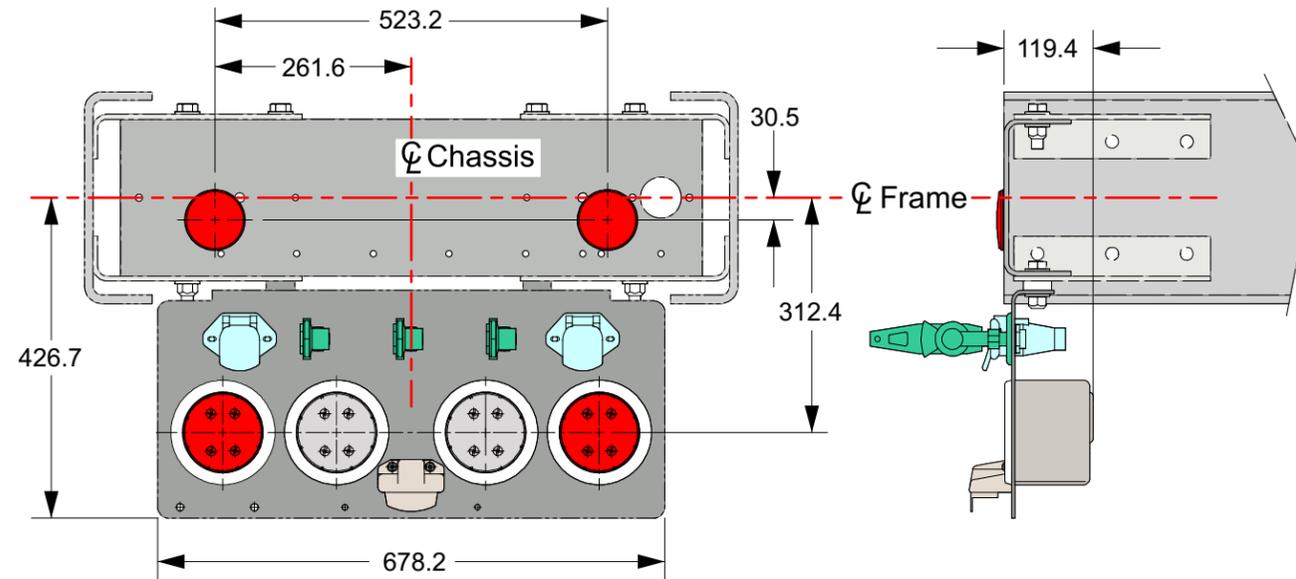
Protected Under Frame Vocational Tail lights

Taillight units are well protected and mounted under end of from crossmember.

- 294-054** - Vsm dual sealed logger light bar mounted stop/tail/turn/backup lights

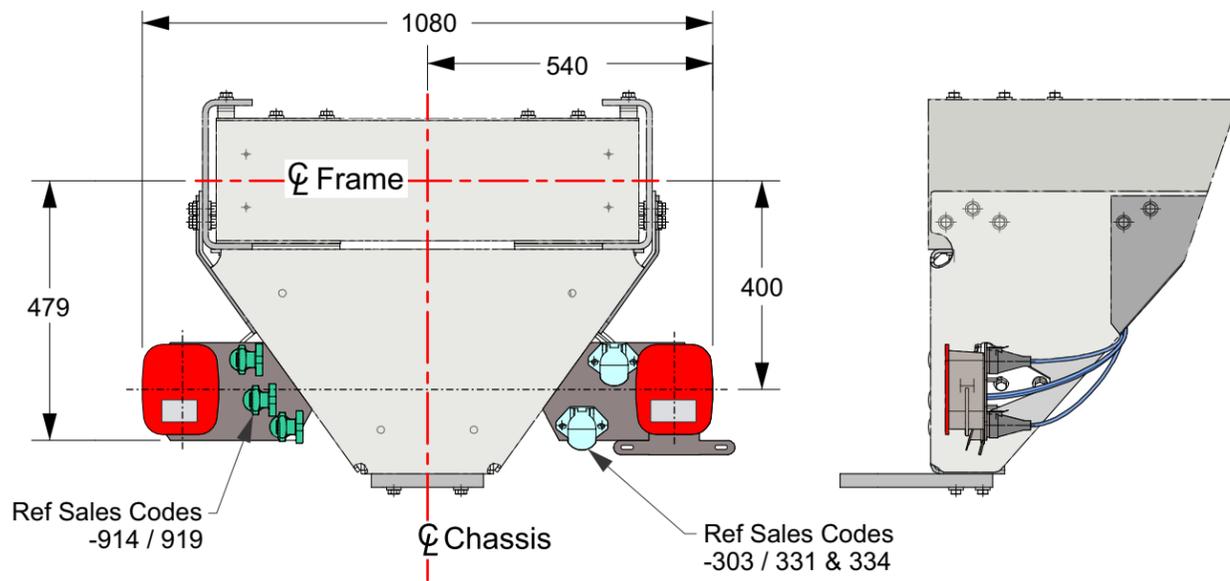


Tail Light Configurations

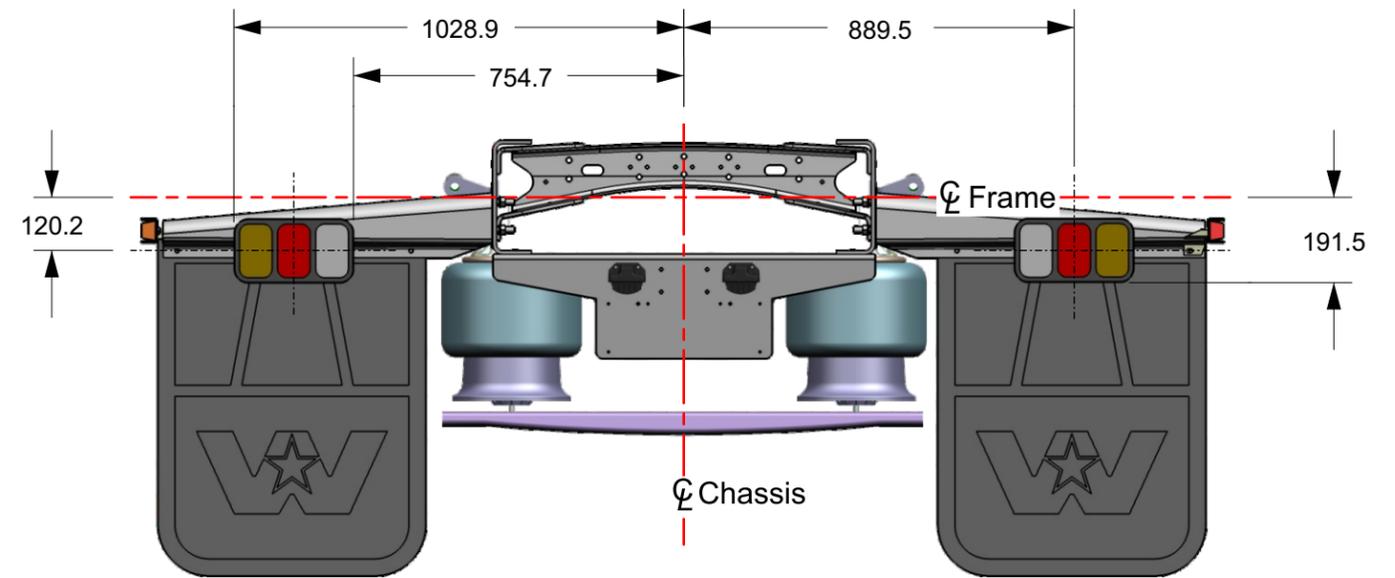


294-1A2 (Shown) - Ind LED Stop/Turn/backup lights Grommet mounted box under end of frame

294-1AV - LED stop/tail with separate LED backup lights mounted on painted steel plate end of frame



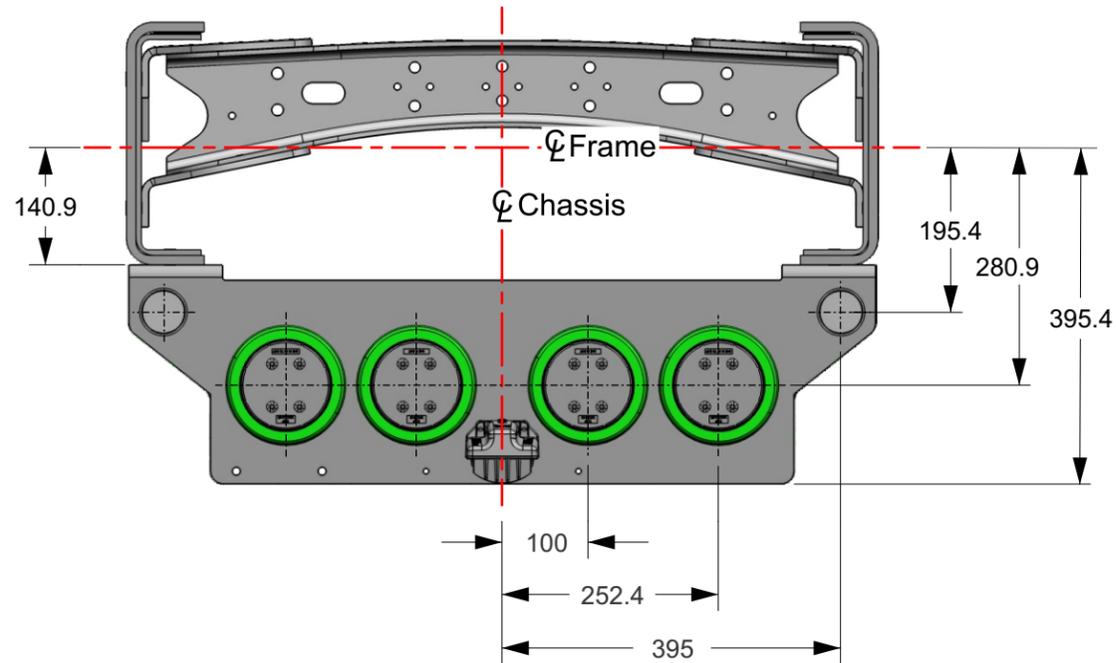
294-001 - Integral stop / tail / backup lights with Deep V EOF



294-021 - Truck-Lite 3 Chamber modules W/45 Series Sealed Beam Lamps

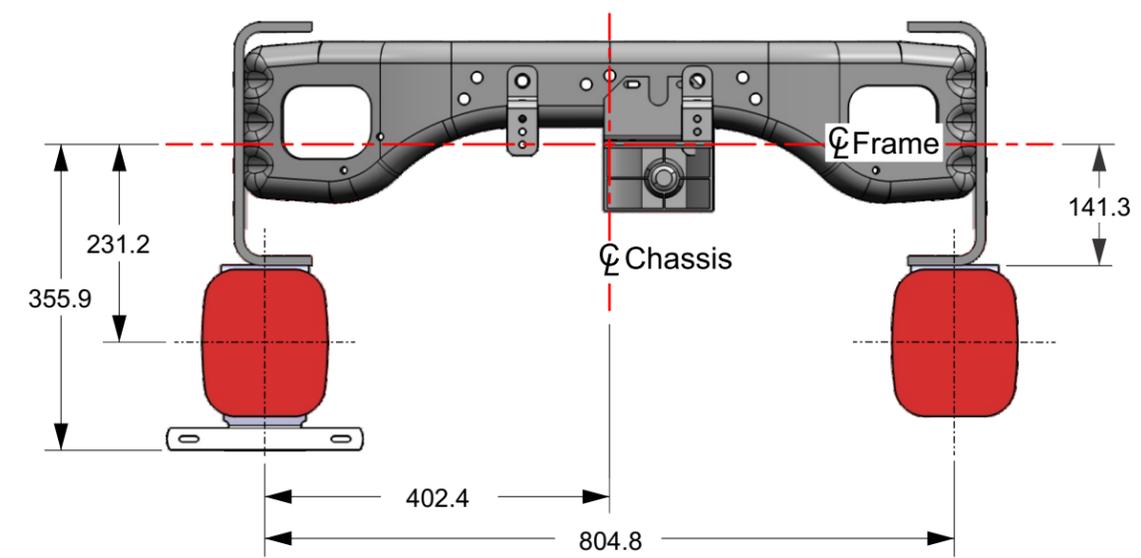
* All dimensions in MM unless otherwise noted

Tail Lights



294-1A2 - Ind LED Stop/Turn/Backup lights Grommet mounted box under end of frame

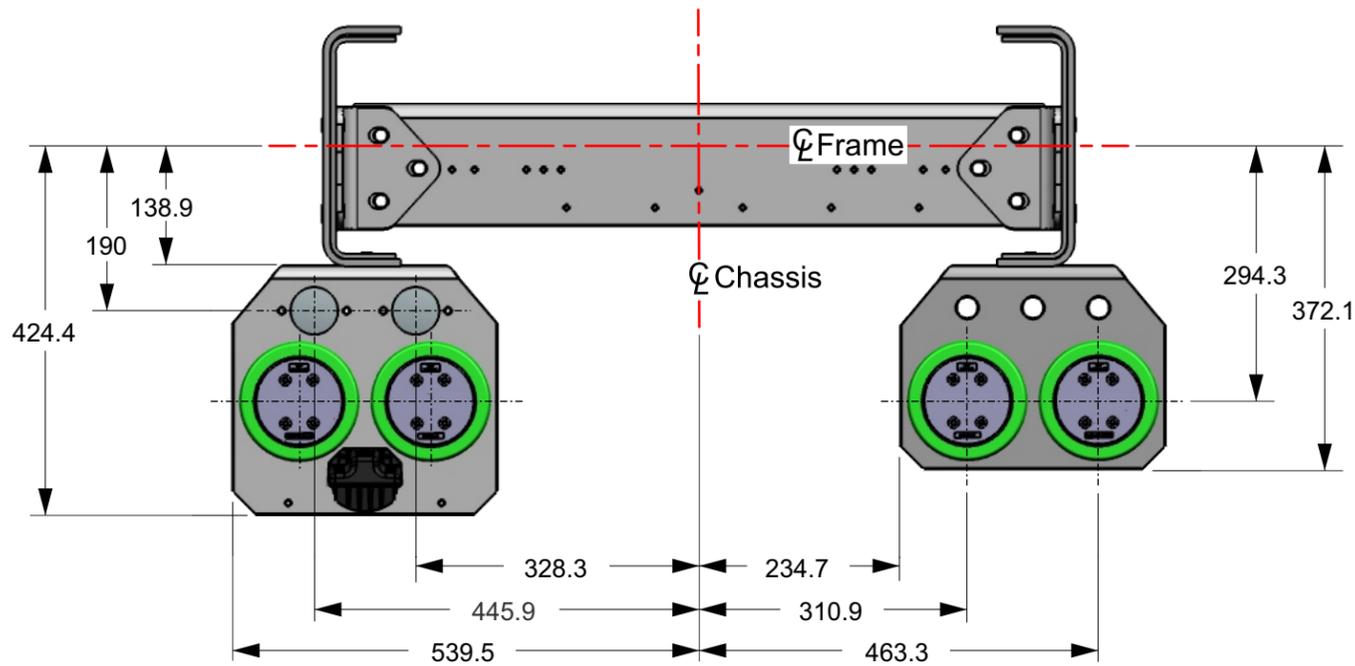
294-1AV - LED stop/tail with separate LED backup lights mounted on painted steel plate end of frame



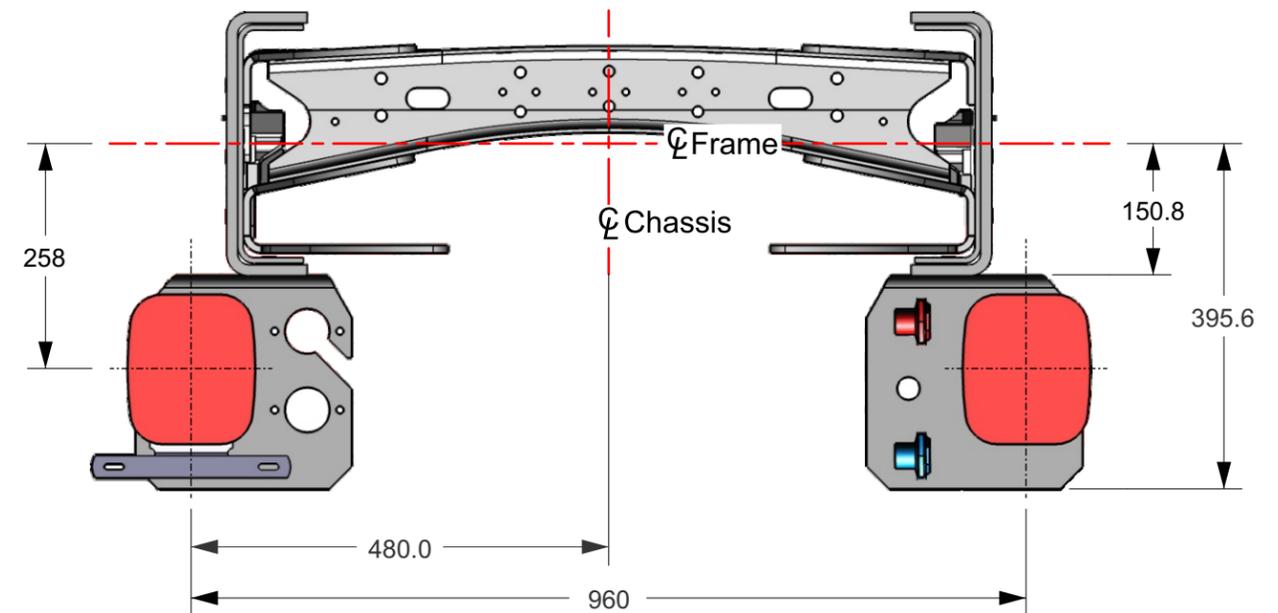
294-001 - Integral stop / tail / backup lights with STD EOF

294-017 - Integral Stop/Tail/Backup lights with 7 extra feet of wire mounted at end of frame

294-1AY - Integral LED Stop/Tail/Backup lights



294-1AU - IND LED Stop/Turn/Backup lights Grommet mounted below rail



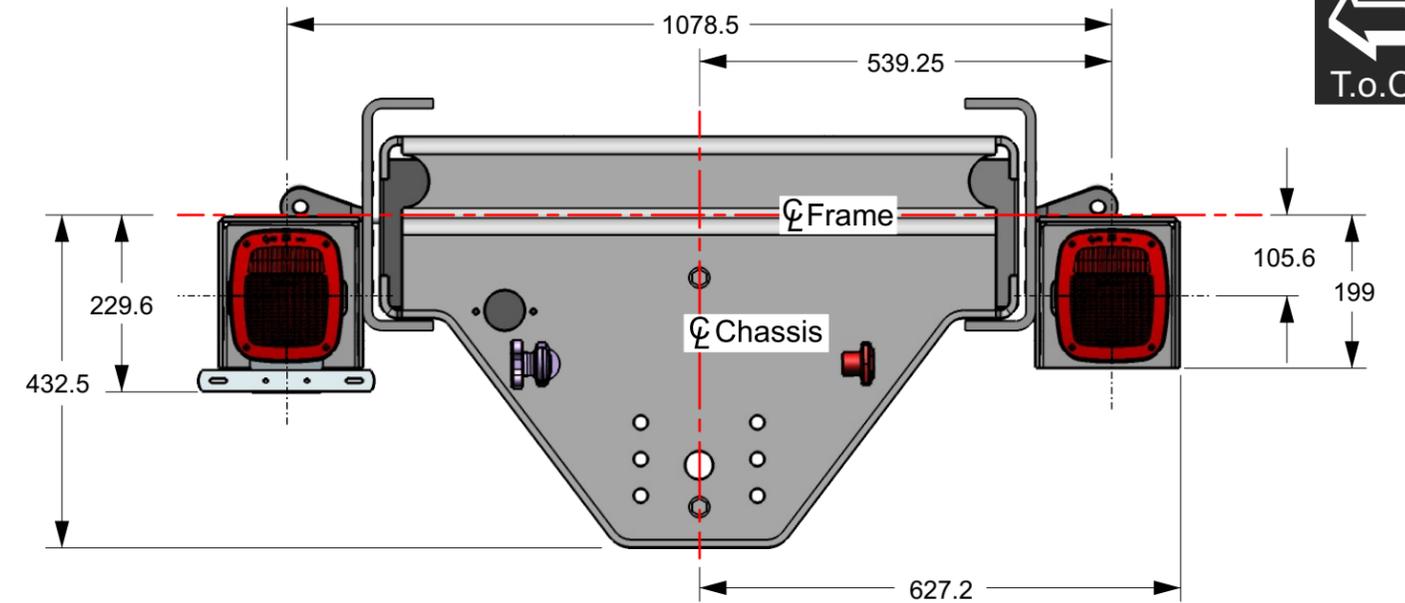
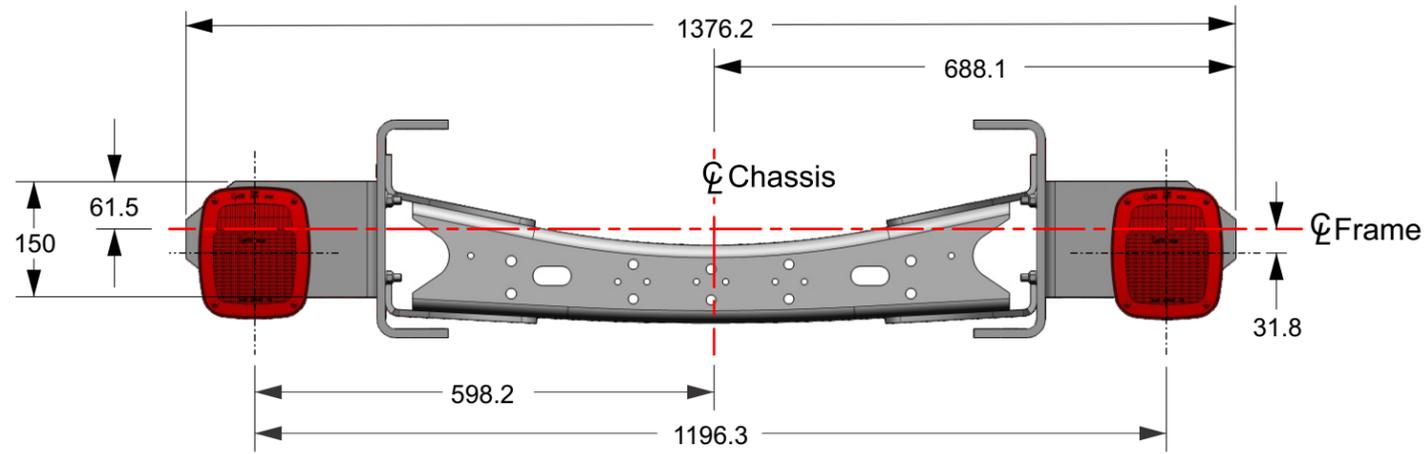
294-001 - Integral stop / tail / backup lights with STD EOF

294-017 - Integral Stop/Tail/Backup lights with 7 extra feet of wire mounted at end of frame

294-1AY - Integral LED Stop/Tail/Backup lights

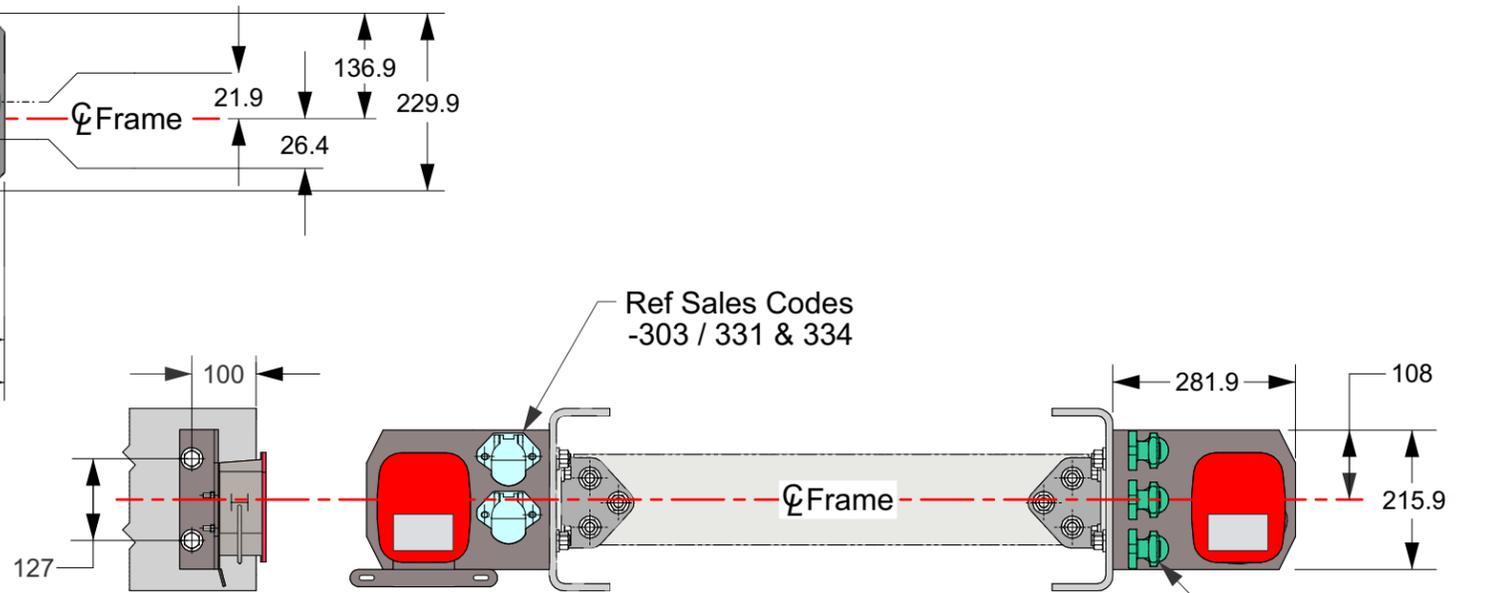
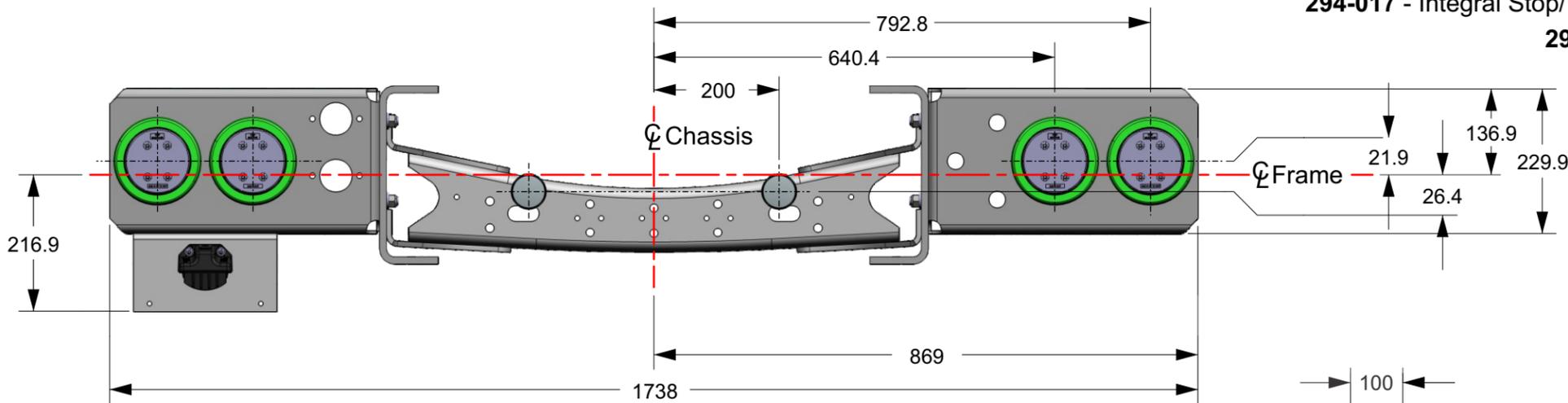
* All dimensions in MM unless otherwise noted

Tail Lights



294-001 - Integral stop / tail / backup lights with STD EOF
294-017 - Integral Stop/Tail/Backup lights with 7 extra feet of wire mounted at end of frame
294-1AY - Integral LED Stop/Tail/Backup lights

294-001 - Integral stop / tail / backup lights with STD EOF
294-017 - Integral Stop/Tail/Backup lights with 7 extra feet of wire mounted at end of frame
294-1AY - Integral LED Stop/Tail/Backup lights



294-1AX - IND LED Stop/Turn/backup lights Grommet mounted outboard of rail

294-001 - Integral stop / tail / backup lights with STD EOF

* All dimensions in MM unless otherwise noted



Revisions

1A

P. 1A-41



Changes Made

Revision 3.2

- Revision page added.
- 4700 Enhanced model information added.
- Added model designators to each page.
- Moved Air related systems to Section 1E.
- Moved all Switch related information to Section 1D.

Revision 3.2a

- Updated Zonar Mounting image page 1A-8.
- Added secondary dash image page 1A-9.
- Revised Aux Disconnect Switch data codes page 1A-12.
- Revised EPA 2007 PX Module to 2005 page 1A-20.
- Three Cavity/Two Legged Fuse was Three Legged Fuse. Updated graphic to add power descriptions page 1A-26.
- Removed 4700 ENH designation, replaced with correct designations page 1A-27.
- Corrected paragraph header to show 4700L page 1A-27.
- Removed 4700 ENH designation, replaced with correct designations page 1A-28.
- Revised layout to incorporate additional images page 1A-28.
- Added connector table data for Cummins page 1A-30 and added note.
- Revised Mounting Bracket callout descriptions for A,B,C page 1A-30.
- Revised Page title, replaced Floor Track with Raceway page 1A-31 and 1A-32.
- Updated sales code descriptions page 1A-32.
- Corrected grammar issue page 1A-36.